

**R392. Health, Disease Control and Prevention, Environmental Services.**

**R392-302. Design, Construction and Operation of Public Pools.**

**R392-302-1. Authority and Purpose of Rule.**

This rule is authorized under Sections 26-1-5, 26-1-30(9) and (23), 26-7-1, and 26-15-2. It establishes minimum standards for the design, construction, operation and maintenance of public pools and provides for the prevention and control of health hazards associated with public pools which are likely to affect public health including risk factors contributing to injury, sickness, death, and disability.

**R392-302-2. Definitions.**

The following definitions apply in this rule.

- (1) "AED" means automated external defibrillator.
- (2) "Backwash" means the process of cleaning a swimming pool filter by reversing the flow of water through the filter.
- (3) "Bather Load" means the number of persons using a pool at any one time or specified period of time.
- (4) "Cleansing shower" means the cleaning of the entire body surfaces with soap and water to remove any matter, including fecal matter, that may wash off into the pool while swimming.
- (5) "Collection Zone" means the area of an interactive water feature where water from the feature will be collected and drained for treatment.
- (6) "CPR" means Cardiopulmonary Resuscitation.
- (7) "Department" means the Utah Department of Health.
- (8) "Executive Director" means the Executive Director of the Utah Department of Health, or his designated representative.
- (9) "Facility" means any premises, building, pool, equipment, system, and appurtenance which appertains to the operation of a public pool.
- (10) "Float Tank" means a tank containing a skin-temperature solution of water and Epsom salts at a specific gravity high enough to allow the user to float supine while motionless and require a deliberate effort by the user to turn over and that is designed to provide for solitary use and sensory deprivation of the user.
- (11) "Gravity Drain System" means a pool drain system wherein the drains are connected to a surge or collector tank and rather than drawing directly from the drain, the circulation pump draws from the surge or collector tank and the surface of the water contained in the tank is maintained at atmospheric pressure.
- (12) "High Bather Load" means 90% or greater of the designed maximum bather load."
- (13) "Hydrotherapy Pool" means a pool designed primarily for medically prescribed therapeutic use.

(14) "Illuminance Uniformity" means the ratio between the brightest illuminance falling on a surface compared to the lowest illuminance falling on a surface within an area. The value of illuminance falling on a surface is measured in foot candles.

(15) "Instructional Pool" means a pool used solely for purposes of providing water safety and survival instruction taught by a certified instructor. Instructional pools do not include private residential pools. Private residential pools used for swim instruction shall not be considered instructional pools as defined in this rule.

(16) "Interactive Water Feature" means a recirculating water feature designed, installed or used for recreational use, in which there is direct water contact from the feature with the public, and when not in operation, all water drains freely so there is no ponding.

(17) "Lamp Lumens" means the quantity of light, illuminance, produced by a lamp.

(18) "Lifeguard" means an attendant who supervises the safety of bathers.

(19) "Living Unit" means one or more rooms or spaces that are, or can be, occupied by an individual, group of individuals, or a family, temporarily or permanently for residential or overnight lodging purposes. Living units include motel and hotel rooms, condominium units, travel trailers, recreational vehicles, mobile homes, single family homes, and individual units in a multiple unit housing complex.

(20) "Local Health Officer" means the health officer of the local health department having jurisdiction, or his designated representative.

(21) "Onsite Septic System" means an approved onsite waste water system designed, constructed, and operated in accordance with Rule 317-4.

(22) "Pool" means a man-made basin, chamber, receptacle, tank, or tub, above ground or in-ground, which, when filled with water, creates an artificial body of water used for swimming, bathing, diving, recreational and therapeutic uses.

(23) "Pool Deck" means the area contiguous to the outside of the pool curb, diving boards, diving towers and slides.

(24) "Pool Shell" means the rigid encasing structure of a pool that confines the pool water by resisting the hydrostatic pressure of the pool water, resisting the pressure of any exterior soil, and transferring the weight of the pool water (sometimes through other supporting structures) to the soil or the building that surrounds it.

(25) "Private Residential Pool" means a swimming pool, spa pool or wading pool used only by an individual, family, or living unit members and guests, but not serving any type of multiple unit

housing complex of four or more living units.

(26) "Public Pool" means a swimming pool, spa pool, wading pool, or special purpose pool facility which is not a private residential pool and may be above ground or in-ground.

(27) "Saturation Index" means a value determined by application of the formula for calculating the saturation index in Table 5, which is based on interrelation of temperature, calcium hardness, total alkalinity and pH which indicates if the pool water is corrosive, scale forming or neutral.

(28) "Spa Pool" means a pool which uses therapy jet circulation, hot water, cold water, bubbles produced by air induction, or any combination of these, to impart a massaging effect upon a bather. Spa pools include, spas, whirlpools, hot tubs, or hot spas.

(29) "Special Purpose Pool" means a pool with design and operational features that provide patrons recreational, instructional, or therapeutic activities which are different from that associated with a pool used primarily for swimming, diving, or spa bathing.

(30) "Splash Pool" means the area of water located at the terminus of a water slide or vehicle slide.

(31) "Swimming Pool" means a pool used primarily for recreational, sporting, or instructional purposes in bathing, swimming, or diving activities.

(32) "Surge Tank" means a tank receiving the gravity flow from an overflow gutter and main drain or drains from which the circulation pump takes water which is returned to the system.

(33) "Turnover" means the circulation of a quantity of water equal to the pool volume through the filter and treatment facilities.

(34) "Vehicle Slide" means a recreational pool where bathers ride vehicles, toboggans, sleds, etc., down a slide to descend into a splash pool.

(35) "Unblockable Drain" means a drain of any size or shape such that a representation of the torso of a 99 percentile adult male cannot sufficiently block it to the extent that it creates a body suction entrapment hazard.

(36) "Wading Pool" means any pool or pool area used or designed to be used by children five years of age or younger for wading or water play activities.

(37) "Waste Water" means discharges of pool water resulting from pool drainage or backwash.

(38) "Water Slide" means a recreational facility consisting of flumes upon which bathers descend into a splash pool.

### **R392-302-3. General Requirements.**

(1) This rule does not require a construction change in any

portion of a public pool facility if the facility was installed and in compliance with law in effect at the time the facility was installed, except as specifically provided otherwise in this rule. However if the Executive Director or the Local Health Officer determines that any facility is dangerous, unsafe, unsanitary, or a nuisance or menace to life, health or property, the Executive Director or the Local Health Officer may order construction changes consistent with the requirements of this rule to existing facilities.

(2) This rule does not regulate any private residential pool. A private residential pool that is used for swimming instruction purposes shall not be regulated as a public pool.

(3) This rule does not regulate any body of water larger than 30,000 square feet, 2,787.1 square meters, and for which the design purpose is not swimming, wading, bathing, diving, a water slide splash pool, or children's water play activities.

(4) This rule does not regulate float tanks.

(5) All public pools shall meet the requirements of this rule unless otherwise specified in R392-302.

#### **R392-302-4. Water Supply.**

(1) The water supply serving a public pool and all plumbing fixtures, including drinking fountains, lavatories and showers, must meet the requirements for drinking water established by the Department of Environmental Quality.

(2) All portions of water supply, re-circulation, and distribution systems serving the facility must be protected against backflow. Water introduced into the pool, either directly or through the circulation system, must be supplied through an air gap or a backflow preventer in accordance with the International Plumbing Code as incorporated and amended in Title 15a, State Construction and Fire Codes Act.

(a) The backflow preventer must protect against contamination, backsiphonage and backpressure.

(b) Water supply lines protected by a backflow prevention device shall not connect to the pool recirculation system on the discharge side of the pool recirculation pump.

#### **R392-302-5. Waste Water.**

(1) Each public pool must connect to a public sanitary sewer or an onsite septic system.

(a) Each public pool must connect to a sanitary sewer or onsite septic system through an air break to preclude the possibility of sewage or waste backup into the piping system. Pools constructed and approved after December 31, 2010 shall be connected through an air gap.

(2) Each public pool shall discharge waste water:

(a) to a public sanitary sewer system when available within 300 feet of the property line with authorization by the local sanitary sewer authority; or

(b) to an onsite septic system when public sanitary sewer system is not within 300 feet of the property line or authorization is not available; or

(c) in accordance with Subsection R392-302-5(4) and Subsection R392-302-5(5) except for any public pool utilizing salt in the pool water.

(i) Public pools utilizing salt in the pool water shall only discharge waste water to a public sanitary sewer system or an onsite septic system which has been designed for such.

(3) A public pool shall not discharge waste water directly to storm sewers or surface waters.

(4) Except for pools utilizing salt in the pool water, a public pool may discharge waste water that is not backwash according to Subsection R392-302-5(5) if:

(a) a public sanitary sewer is not available within 300 feet of a property line or authorization to discharge to a sanitary sewer is not available; and

(b) an onsite septic system is not available or designed for the discharge amount.

(5) If a public pool meets the criteria of Subsection R392-302-5(4), the public pool shall reduce the disinfectant level to less than one part per million and:

(a) may discharge as irrigation in an area where the water will not flow into a storm drain or surface water; or

(b) may discharge on the facility's property as long as it does not flow off the property.

(6) Public pools shall not discharge waste water in a manner that will create a nuisance condition.

#### **R392-302-6. Construction Materials.**

(1) Each public pool and the appurtenances necessary for its proper function and operation must be constructed of materials that are inert, non-toxic to humans, impervious, enduring over time, and resist the effects of wear and deterioration from chemical, physical, radiological, and mechanical actions.

(2) All public pools shall be constructed with a pool shell that meets the requirements of this section R392-302-6. Vinyl liners that are not bonded to a pool shell are prohibited. A vinyl liner that is bonded to a pool shell shall have at least a 60 mil thickness. Sand, clay or earth walls or bottoms are prohibited.

(3) The pool shell of a public pool must withstand the stresses associated with the normal uses of the pool and regular maintenance. The pool shell shall by itself withstand, without

any damage to the structure, the stresses of complete emptying of the pool without shoring or additional support.

(4) In addition to the requirements of R392-302-6(3), the interior surface of each pool must be designed and constructed in a manner that provides a smooth, easily cleanable, non-abrasive, and slip resistant surface. The pool shell surfaces must be free of cracks or open joints with the exception of structural expansion joints. The owner of a non-cementitious pool shall submit documentation with the plans required in R392-302-8 that the surface material has been tested and passed by an American National Standards Institute (ANSI) accredited testing facility using one of the following standards that is appropriate to the material used:

(a) for a fiberglass reinforced plastic spa pool, the International Association of Plumbing and Mechanical Officials (IAPMO) standard IAPMO/ANSI Z 124.7-2013, which is incorporated by reference;

(b) for a fiberglass reinforced plastic swimming pool, the IAPMO IGC 158-2000 standard, which is incorporated by reference;

(c) for pools built with prefabricated pool sections or pool members, ISO 19712-1:2008 - Plastics - Decorative solid surfacing materials - Part 1: Classification and specifications, which is incorporated by reference; or

(d) a standard that has been approved by the Department based on whether the standard is applicable to the surface and whether it determines compliance with the requirements of this section R392-302-6.

(5) The pool shell surface must be of a white or light pastel color.

#### **R392-302-7. Bather Load.**

(1) The bather load capacity of a public pool is determined as follows:

(a) Ten square feet, 0.929 square meters, of pool water surface area must be provided for each bather in a spa pool during maximum load.

(b) Twenty-four square feet, 2.23 square meters, of pool water surface area must be provided for each bather in an indoor swimming pool during maximum load.

(c) Twenty square feet, 1.86 square meters, of pool water surface area must be provided for each bather in an outdoor swimming pool during maximum load.

(d) Fifty square feet, 4.65 square meters, of pool water surface must be provided for each bather in a slide plunge pool during maximum load.

(2) The Department may make additional allowance for bathers when the facility operator can demonstrate that lounging and

sunbathing patrons will not adversely affect water quality due to over-loading of the pool.

**R392-302-8. Design Detail and Structural Stability.**

(1) The designing architect or engineer is responsible to certify the design for structural stability and safety of the public pool.

(2) The shape of a pool and design and location of appurtenances must be such that the circulation of pool water and control of swimmer's safety are not impaired. The designing architect or engineer shall designate sidewalls and endwalls on pool plans.

(3) A pool must have a circulation system with necessary treatment and filtration equipment as required in R392-302-16, unless turnover rate requirements as specified in sub-section R392-302-16(1) can be met by continuous introduction of fresh water and wasting of pool water under conditions satisfying all other requirements of this rule.

(4) Where a facility is subject to freezing temperatures, all parts of the facility subject to freezing damage must be adequately and properly protected from damage due to freezing, including the pool, piping, filter system, pump, motor, and other components and systems.

(5) No new pool construction or modification project of an existing pool shall begin until the requirements of Subsection R392-302-8(6) have been met.

(6) The pool owner or designee shall submit a set of plans for a new pool or modification project of an existing pool to the local health department. This includes the replacement of equipment which is different from that originally approved by the local health department.

(a) The set of plans shall have sufficient details to address all applicable requirements of R392-302 and shall bear a stamp from an engineer licensed in the State of Utah.

(b) The local health department may exempt the pool owner from Subsection R392-302-8(6) for a modification of an existing pool if health and safety are not compromised.

(c) The set of plans shall be initially reviewed by the local health department and a letter of review sent by the local health department to the submitter, pool owner, or designee within 30 days of submittal.

(d) The pool owner shall make required changes to the plans to meet the local health department's review criteria.

(7) All manufactured components of the pool shall be installed as per manufacturer's recommendations.

**R392-302-9. Depths and Floor Slopes.**

(1) In determining the horizontal slope ratio of a pool floor, the first number shall indicate the vertical change in value or rise and the second number shall indicate the horizontal change in value or run of the slope.

(a) The horizontal slope of the floor of any portion of a pool having a water depth of less than 5 feet, 1.52 meters, may not be steeper than a ratio of 1 to 10 except for a pool used exclusively for scuba diving training.

(b) The horizontal slope of the floor of any portion of a pool having a water depth greater than 5 feet, 1.52 meters, must be uniform, must allow complete drainage and may not exceed a ratio of 1 to 3 except for a pool used exclusively for scuba diving training. The horizontal slope of the pool bottom in diving areas must be consistent with the requirements for minimum water depths as specified in Section R392-302-11 for diving areas.

#### **R392-302-10. Walls.**

(1) Pool walls must be vertical or within plus three degrees of vertical to a depth of at least two feet and nine inches.

(2) Walls shall transition from wall to floor using a radius or an angle.

(3) When a radius is used as the transition from wall to floor, the radius shall meet the following requirements:

(a) At water depths of 3 ft. or less, a transitional radius from wall to floor shall not exceed 6 in. and shall be tangent to the wall and may be tangent to or intersect the floor.

(b) At water depth between 3 ft. to 5 ft. the maximum transitional radius from wall to floor shall be determined by calculating the radius as it varies progressively from a maximum 6 inch radius at a 3 foot depth to a maximum of 2 feet radius at 5 feet of depth.

(c) At water depth greater than 5 feet the maximum transitional radius from wall to floor shall be equivalent to the water depth of the pool less 3 feet.

(4) When an angle is used as the transition from wall to floor, the angle shall meet the following requirements:

(a) At water depths of 3 ft. or less, a transitional angle from wall to floor shall start maximum 3 inches above the floor and shall intersect the floor at an angle equal to or steeper than 45 degrees from horizontal.

(b) At water depth between 3 ft. to 5 ft. the transitional angle from wall to floor shall vary progressively starting at a maximum of 3 inches above the floor at a 3 foot depth to a maximum of 18 inches above the floor at the 5 foot depth and shall intersect the floor at an angle equal to or steeper than 45 degrees from horizontal.

(c) At water depths greater than 5 feet the transitional



angle from wall to floor shall be equivalent to the water depth of the pool less 3 feet 6 inches and shall intersect the floor at an angle:

- (i) equal to or steeper than 45 degrees from horizontal; or
- (ii) equal to or a shallower angle than the 1:3 floor slope required in R39-302-9(1)(b) for these areas.

(5) All outside corners created by adjoining walls or floor shall be rounded or chamfered to eliminate sharp corners to be easily cleanable.

(6) Underwater ledges are prohibited except when approved by the local health officer for a special purpose pool. Underwater ledges are prohibited in areas of a pool designed for diving. Where underwater ledges are allowed, a line must mark the extent of the ledge within 2 inches, 5.08 centimeters, of its leading edge. The line must be at least 2 inches, 5.08 centimeters, in width and in a contrasting dark color for maximum visual distinction.

(7) Underwater seats and benches are allowed in pools so long as they conform to the following:

(a) Seats and benches shall be located completely inside of the shape of the pool. Where seats and benches are not located on the perimeter walls of the pool, seats and benches shall have a wall on the back of the seats and benches that extend above the operating level of the pool and is clearly visible to users.

(b) The horizontal surface shall be a maximum of 20 inches, 51 centimeter, below the water line;

(c) An unobstructed surface shall be provided that is a minimum of 10 inches, 25 centimeters, and a maximum of 20 inches front to back, and a minimum of 24 inches, 61 centimeters, wide;

(d) Seats and benches shall not transverse a depth change of more than 24 inches, 61 centimeters;

(e) The minimum horizontal separation between sections of seats and benches shall be five feet, 1.52 meters.

(f) The pool wall under the seat or bench shall be flush with the leading edge of the seat or bench and meet the requirements of R392-302-10(1) and (2);

(g) Seats and benches may not replace the stairs or ladders required in R392-302-12, but are allowed in conjunction with pool stairs;

(h) Underwater seats may be located in the deep area of the pool where diving equipment (manufactured or constructed) is installed, provided they are located outside of the minimum water envelope for diving equipment; and

(i) A line must mark the extent of the seat or bench within 2 inches, 5.08 centimeters, of its leading edge. The line must be at least 2 inches, 5.08 centimeters, in width and in a contrasting dark color for maximum visual distinction.

(8) Recessed footholds are allowed so long as they are at least four feet, 1.21 meters, under water and meet the requirements of R392-302-12(5)(b) and (c).

#### **R392-302-11. Diving Areas.**

(1) Where diving is permitted, the diving area design, equipment placement, and clearances must meet the minimum standards of:

(a) The 2015-2017 USA Diving Official Technical Rules, Appendix B - FINA Dimensions for Diving Facilities, which are incorporated by reference.; or

(b) Rule 1, Section 1, Article 4 and Rule 1, Section 2, Article 4 of the NCAA Men's and Women's Swimming and Diving 2014-2015 Rules and Interpretations, which is incorporated by reference; or

(c) Table 4.8.2.2 and Figure 4.8.2.2.1 and Figure 4.8.2.2.2 of the 2018 Model Aquatic Health Code, which are incorporated by reference; or

(d) Section 402.12, Table 402.12, and Figure 402.12 of the 2018 International Swimming Pool and Spa Code, which is incorporated by reference.

(2) Where diving from a height of less than 3.28 feet, 1 meter, from normal water level is permitted, the diving bowl shall meet the minimum depths outlined in Section 6, Figure 1 and Table 2 of ANSI/NSPI-1, 2003, which is adopted by reference, for type VI, VII and VIII pools according to the height of the diving board above the normal water level. ANSI/NSPI pool type VI is a maximum of 26 inches, 2/3 meter, above the normal water level; type VII is a maximum of 30 inches, 3/4 meter, above the normal water level; and type VIII is a maximum of 39.37 inches, 1 meter, above the normal water level.

(3) The use of a starting platform is restricted to competitive swimming events or supervised training for competitive swimming events.

(a) If starting platforms are used for competitive swimming or training, the water depth shall be at least four feet.

(b) The operator shall either remove the starting platforms or secure them with a lockable cone-type platform safety cover when not in competitive use.

(4) Areas of a pool where diving is not permitted must have "NO DIVING" or the international no diving icon, or both provided in block letters at least four inches, 10.16 centimeters, in height, as required in R392-302-39(3)(a), in a contrasting color on the deck, located on the horizontal surface of the deck or coping as close to the water's edge as practical.

(a) Where the "NO DIVING" warnings are used, the spacing between each warning may be no greater than 25 feet, 7.62

centimeters.

(b) Where the icon alone is used on the deck as required, the operator shall also post at least one "NO DIVING" sign in plain view within the enclosure. Letters shall be at least four inches, 10.16 centimeters, in height with a stroke width of at least one-half inch.

### **R392-302-12. Ladders, Recessed Steps, and Stairs.**

#### **(1) Location.**

(a) In areas of a pool where the water depth is greater than 2 feet, 60.96 centimeters, and less than 5 feet, 1.52 meters, as measured vertically from the bottom of the pool to the mean operating level of the pool water, steps or ladders must be provided, and be located in the area of shallowest depth.

(b) In areas of the pool where the water depth is greater than 5 feet, 1.52 meters, as measured vertically from the bottom of the pool to the mean operating level of the pool water, ladders or recessed steps must be provided.

(c) A pool over 30 feet, 9.14 meters, wide must be equipped with steps, recessed steps, or ladders as applicable, installed on each end of both side walls.

(d) A pool over 30 feet, 9.14 meters, wide and 75 feet, 22.8 meters, or greater in length, must have ladders or recessed steps midway on both side walls of the pool, or must have ladders or recessed steps spaced at equal distances from each other along both sides of the pool at distances not to exceed 30 feet, 9.14 meters, in swimming and diving areas, and 50 feet, 15.23 meters, in non-swimming areas.

(e) Ladders or recessed steps must be located within 15 feet, 4.56 meters, of the diving area end wall.

(f) No pool shall be equipped with fewer than two means of entry or exit as outlined above.

#### **(2) Handrails.**

(a) Handrails must be rigidly installed and constructed in such a way that they can only be removed with tools.

(b) Handrails must be constructed of corrosion resistant materials.

(c) The outside diameter of handrails may not exceed 2 inches, 5.08 centimeters.

#### **(3) Steps.**

(a) Steps must have at least one handrail. The handrail shall be mounted on the deck and extend to the bottom step either attached at or cantilever to the bottom step. Handrails may also be mounted in the pool bottom of a wading area at the top of submerged stairs that lead into a swimming pool; such handrails must also extend to the bottom step either attached at or cantilever to the bottom step.

(b) Steps must be constructed of corrosion-resistant material, be easily cleanable, and be of a safe design.

(c) Steps leading into pools must be of non-slip design, have a minimum run of 10 inches, 25.4 centimeters, and a maximum rise of 12 inches, 30.48 centimeters.

(d) Steps must have a minimum width of 18 inches, 45.72 centimeters, as measured at the leading edge of the step.

(e) Steps must have a line at least 1 inch, 2.54 centimeters, in width and be of a contrasting dark color for a maximum visual distinction within 2 inches, 5.08 centimeters, of the leading edge of each step.

(4) Ladders.

(a) Pool ladders must be corrosion-resistant and must be equipped with non-slip rungs.

(b) Pool ladders must be designed to provide a handhold, must be rigidly installed, and must be maintained in safe working condition.

(c) Pool ladders shall have a clearance of not more than 5 inches, 12.7 centimeters, nor less than 3 inches, 7.62 centimeters, between any ladder rung and the pool wall.

(d) Pool ladders shall have rungs with a maximum rise of 12 inches, 30.5 centimeters, and a minimum width of 14 inches, 35.6 centimeters.

(5) Recessed Steps.

(a) Recessed steps shall have a set of grab rails located at the top of the course with a rail on each side which extend over the coping or edge of the deck.

(b) Recessed steps shall be readily cleanable and provide drainage into the pool to prevent the accumulation of dirt on the step.

(c) Full or partial recessed steps must have a minimum run of 5 inches, 12.7 centimeters, and a minimum width of 14 inches, 35.56 centimeters.

### **R392-302-13. Decks and Walkways.**

(1) A continuous, unobstructed deck at least 5 feet, 1.52 meters, wide must extend completely around the pool. The deck is measured from the pool side edge of the coping if the coping is flush with the pool deck, or from the back of the pool curb if the coping is elevated from the pool deck. Pool curbs shall be a minimum of 12 inches wide. The pool deck may include the pool coping if the coping is installed flush with the surrounding pool deck. If the coping is elevated from the pool deck, the maximum allowed elevation difference between the top of the coping surface and the surrounding deck is 19 inches, 38.1 centimeters. The minimum allowed elevation is 4 inches.

(2) Deck obstructions are allowed to accommodate diving

boards, platforms, slides, steps, or ladders so long as at least 5 feet, 1.52 meters, of deck area is provided behind the deck end of any diving board, platform, slide, step, or ladder. Other types of deck obstructions may also be allowed by the local health officer so long as the obstructions meet all of the following criteria:

(a) the total pool perimeter that is obstructed equals less than 10 percent of the total pool perimeter; likewise, no more than 15 feet, 4.56 meters, of pool perimeter can be obstructed in any one location;

(b) multiple obstructions must be separated by at least five feet, 1.52 meters;

(c) an unobstructed area of deck not less than five feet, 1.52 meters, is provided around or through the obstruction and located not more than fifteen feet, 4.55 meters, from the edge of the pool.

(d) the design of the obstruction does not endanger the health or safety of persons using the pool; and

(e) written approval for the obstruction is obtained from the local health official prior to, or as part of, the plan review process.

(3) The deck must slope away from the pool to floor drains at a grade of 1/4 inch, 6.35 millimeters, to 3/8 inch, 9.53 millimeters, per linear foot.

(a) The Local Health Officer may allow decks to slope towards the pool for deck level gutter pools if it can be demonstrated that it will not adversely affect the pool's water quality and:

(i) the deck must slope back towards the pool for a maximum distance of five feet, 1.52 meters, from the water's edge; and

(ii) the portion of the deck that slopes back towards the pool must slope towards the pool at grade of 1/4 inch, six millimeters, to 3/8 inch, ten millimeters, per linear foot; and

(iii) a minimum of three feet, 91.4 centimeters, of deck that meets R392-302-13(3) must be provided beyond the high point of said deck.

(4) Decks and walkways must be constructed to drain away any standing water and must have non-slip surfaces.

(5) Wooden decks, walks or steps are prohibited.

(6) Deck drains may not return water to the pool or the circulation system.

(7) The operator shall maintain decks in a sanitary condition and free from litter.

(8) Carpeting may not be installed within 5 feet, 1.52 meters, of the water side edge of the coping. The operator shall wet vacuum any carpeting as often as necessary to keep it clean and free of accumulated water.

(9) Steps serving decks must meet the following requirements:

(a) Risers of steps for the deck must be uniform and have a minimum height of 4 inches, 10.2 centimeters, and a maximum height of 7 inches, 17.8 centimeters.

(b) The minimum run of steps shall be 10 inches, 25.4 centimeters.

(c) Steps must have a minimum width of 18 inches, 45.72 centimeters.

#### **R392-302-14. Fencing and Barriers.**

(1) A fence or other barrier is required and must provide complete perimeter security of the facility, and be at least 6 feet, 1.83 meters, in height. Openings through the fence or barrier, other than entry or exit access when the access is open, may not permit a sphere greater than 4 inches, 10.16 centimeters, to pass through it at any location. Horizontal members shall be equal to or more than 45 inches, 114.3 centimeters, apart.

(a) If the local health department determines that the safety of children is not compromised, it may exempt indoor pools from the fencing requirements.

(b) The local health department may grant exceptions to the height requirements in consideration of architectural and landscaping features for pools designed for hotels, motels and apartment houses.

(2) A fence or barrier that has an entrance to the facility must be equipped with a self-closing and self-latching gate or door. Except for self-locking mechanisms, self-latching mechanisms must be installed 54 inches, 1.37 meters, above the ground and must be provided with hardware for locking the gate when the facility is not in use. A lock that is separate from the latch and a self locking latch shall be installed with the lock's operable mechanism (key hole, electronic sensor, or combination dial) between 34 inches, 86.4 centimeters, and 48 inches, 1.219 meters, above the ground.

(a) All gates for the pool enclosure shall open outward from the pool except where emergency egress rules or ordinances require them to swing into the pool area.

(b) Emergency egress gates or doors shall be designed in such a way that they do not prevent egress in the event of an emergency.

(c) Gates or doors shall be constructed so as to prevent unauthorized entry from the outside of the enclosure around pool area.

(3) Entrances to the facility may be exempted by the local health officer from the requirements in R392-302-14(2) if:

(a) The gate or door to a facility or pool area is part of a

staffed, controlled entrance and is locked when the facility or pool area is not open to the public; or

(b) The pool or facility has certified lifeguards conducting patron surveillance when the pool or facility is open and the gate or door is locked when the facility or pool is not open to the public.

(4) The gate or door shall have no opening greater than 0.5 inches, 1.27 centimeters, within 18 inches, 45.7 centimeters, of the latch release mechanism.

(5) Any pool enclosure which is accessible to the public when one or more of the pools are not being maintained for use, shall protect those closed pools from access by a sign meeting R392-302-39(3)(a) indicating the pool is closed and by using:

(a) a safety cover which restricts access and meets the minimum ASTM standard F1346-91; or

(b) a secondary barrier that is approved by the Department; or

(c) any method approved by the Department.

#### **R392-302-15. Depth Markings and Safety Ropes.**

(1) The depth of the water must be plainly marked at locations of maximum and minimum pool depth, and at the points of separation between the swimming and non-swimming areas of a pool. Pools must also be marked at intermediate 1 foot, 30.48 centimeters, increments of depth, spaced at distances which do not exceed 25 feet, 7.62 meters. Markings must be located above the water line or within 2 inches, 5.8 centimeters, from the coping on the vertical wall of the pool and on the edge of the deck or walk next to the pool with numerals at least 4 inches, 10.16 centimeters, high as required in R392-302-39(3).

(2) A pool with both swimming and diving areas must have a floating safety rope separating the swimming and diving areas. An exception to this requirement is made for special activities, such as swimming contests or training exercises when the full unobstructed length of the pool is used.

(a) The safety rope must be securely fastened to wall anchors. Wall anchors must be of corrosion-resistant materials and must be recessed or have no projections that may be a safety hazard if the safety rope is removed.

(b) The safety rope must be marked with visible floats spaced at intervals of 7 feet, 2.13 meters or less.

(c) The rope must be at least 0.5 inches, 1.27 centimeters, in diameter, and of sufficient strength to support the loads imposed on it during normal bathing activities.

(3) A pool constructed with a change in the slope of the pool floor must have the change in slope designated by a floating safety rope and a line of demarcation on the pool floor.

(a) The floating safety rope designating a change in slope of the pool floor must be attached at the locations on the pool wall that place it directly above and parallel to the line on the bottom of the pool. The floating safety rope must meet the requirements of Subsections R392-302-15(2)(a), (b), and (c).

(b) A line of demarcation on the pool floor must be marked with a contrasting dark color.

(c) The line must be at least 2 inches, 5.08 centimeters, in width.

(d) The line must be located 12 inches, 30.48 centimeters, toward the shallow end from the point of change in slope.

(4) The Department may exempt a spa pool from the depth marking requirement if the spa pool owner can successfully demonstrate to the Department that bather safety is not compromised by the elimination of the markings.

### **R392-302-16. Circulation Systems.**

(1) A circulation system, consisting of pumps, piping, filters, water conditioning and disinfection equipment and other related equipment must be provided. The operator shall maintain the normal water line of the pool at the overflow rim of the gutter, if an overflow gutter is used, or at the midpoint of the skimmer opening if skimmers are used whenever the pool is open for bathing. An exemption to this requirement may be granted by the Department if the pool operator can demonstrate that the safety of the bathers is not compromised.

(a) The circulation system shall meet the minimum turnover time listed in Table 1.

(b) If a single pool incorporates more than one the pool types listed in Table 1, either:

(i) the entire pool shall be designed with the shortest turnover time required in Table 1 of all the turnover times for the pool types incorporated into the pool or

(ii) the pool shall be designed with pool-type zones where each zone is provided with the recirculation flow rate that meets the requirements of Table 1.

(c) The Health Officer may require the pool operator to demonstrate that a pool is performing in accordance with the approved design.

(d) The operator shall run circulation equipment continuously except for periods of routine or other necessary maintenance. Pumps with the ability to decrease flow when the pool has little or no use are allowed as long as the original approved and designed number of turnovers are achieved in 24 hours that would be required using the turnover time listed in Table 1 and the water quality standards of R392-302-27 can be maintained. The circulation system must be designed to permit complete



drainage of the system.

(e) Piping must be of non-toxic material, resistant to corrosion and be able to withstand operating pressures.

(f) Plumbing must be identified by a color code or labels.

(2) The water velocity in discharge piping may not exceed 10 feet, 3.05 meters, per second, except for copper pipe where the velocity for piping may not exceed 8 feet, 2.44 meters, per second.

(3) Suction velocity for all piping may not exceed 6 feet, 1.83 meters, per second.

(4) The circulation system must include a strainer to prevent hair, lint, etc., from reaching the pump.

(a) Strainers must be corrosion-resistant with openings not more than 1/8 inch, 3.18 millimeters, in size.

(b) Strainers must provide a free flow capacity of at least four times the area of the pump suction line.

(c) Strainers must be readily accessible for frequent cleaning.

(d) Strainers must be maintained in a clean and sanitary condition.

(e) Each pump strainer must be provided with necessary valves to facilitate cleaning of the system without excessive flooding.

(5) A vacuum-cleaning system must be provided.

(a) If this system is an integral part of the circulation system, connections must be located in the walls of the pool, at least 8 inches, 20.32 centimeters, below the water line. This requirement does not apply to vacuums operated from skimmers.

(b) The number of connections provided must facilitate access to all areas of the pool through hoses less than 50 feet, 15.24 meters, in length.

(6) A rate-of-flow indicator, reading in gallons per minute, must be properly installed and located according to manufacturer recommendations. The indicator must be located in a place and position where it can be easily read.

(7) Pumps must be of adequate capacity to provide the required number of turnovers of pool water as specified in Subsection R392-302-16, Table 1. The pump or pumps must be capable of providing flow adequate for the backwashing of filters. Under normal conditions, the pump or pumps must supply the circulation rate of flow at a dynamic head which includes, in addition to the usual equipment, fitting and friction losses, an additional loss of 15 feet, 4.57 meters, for rapid sand filters, vacuum precoat media filters or vacuum cartridge filters and 40 feet, 12.19 meters, for pressure precoat media filters, high rate sand filters or cartridge filters, as well as pool inlet orifice loss of 15 feet, 4.57 meters.

(8) A pool equipped with heaters must meet the requirements for boilers and pressure vessels as required by the State of Utah Boiler and Pressure Vessel Rules, R616-2, and must have a fixed thermometer mounted in the pool circulation line downstream from the heater outlet. The heater must be provided with a heatsink as required by manufacturer's instructions.

(9) The area housing the circulation equipment must be designed with adequate working space so that all equipment may be easily disassembled, removed, and replaced for proper maintenance.

(10) All circulation lines to and from the pool must be regulated with valves in order to control the circulation flow.

(a) All valves must be located where they will be readily and easily accessible for maintenance and removal.

(b) Multiport valves must comply with NSF/ANSI 50-2015, which is incorporated by reference.

(11) Written operational instructions must be immediately available at the facility at all times.

(12) Notwithstanding Subsection R392-302-3(1), all pools must comply with Subsection 16(12) by January 31, 2023. All chemical feed systems must include two layers of interlocking protection for a low or no flow condition so that the operation of the chemical feeders is dependent upon the operational flow of the main circulation system. The functionality of the interlocking shall be verified by the operator and documented to the local health department. This interlocking shall be accomplished through an electrical interlock consisting of both:

(a) A flow meter or flow switch at the chemical controller; and

(b) Chemical feeders wired electrically to the circulation system. This may include the use of a differential pressure switch, a pump power monitor, or other suitable means.

TABLE 1

Circulation

Pool Type	Min. Number of Wall Inlets	Min. Number of Skimmers per 3,500 square ft. or less	Min. Turnover Time
1. Swim	1 per 10 ft., 3.05 m.	1 per 500 sq. ft., 46.45 sq. m.	8 hrs.
2. Swim,	1 per	1 per	6 hrs.

high bather load	10 ft., 3.05 m.	500 sq. ft., 46.45 sq. m.	
3. Wading pool	1 per 20 ft., 6.10 m. min. of 2 equally spaced	1 per 500 sq. ft. 46.45 sq. m.	1 hr.
4. Spa	1 per 20 ft., 6.10 m.	1 per 100 sq. ft., 9.29 sq. m.	0.5 hr.
5. Wave	1 per 10 ft., 3.05 m.	1 per 500 sq. ft., 46.45 sq. m.	6 hrs.
6. Slide	1 per 10 ft., 3.05 m.	1 per 500 sq. ft., 46.45 sq. m.	1 hr.
7. Vehicle slide	1 per 10 ft., 3.05 m.	1 per 500 sq. ft., 46.45 sq. m.	1 hr.
8. Special Purpose Pool	1 per 10 ft., 3.05 m.	1 per 500 sq. ft., 46.45 sq. m.	1 hr.

(~~12~~13) Each air induction system installed must comply with the following requirements:

(a) An air induction system must be designed and maintained to prevent any possibility of water back-up that could cause electrical shock hazards.

(b) An air intake may not introduce contaminants such as noxious chemicals, fumes, deck water, dirt, etc. into the pool.

(~~13~~14) The circulation lines of jet systems and other forms of water agitation must be independent and separate from the circulation-filtration and heating systems.

#### **R392-302-17. Inlets.**

(1) Inlets for fresh or treated water must be located to produce uniform circulation of water and to facilitate the maintenance of a uniform disinfectant residual throughout the entire pool.

(2) If wall inlets from the circulation system are used,

they must be flush with the pool wall and submerged at least 5 feet, 1.52 meters, below the normal water level or at the bottom of the vertical wall surface tangent to the arc forming the transition between the vertical wall and the floor of the pool. Except as provided in Subsection R392-302-31(13) and Subsection R392-302-32(6), wall inlets must be placed every 10 feet, 3.05 meters, around the pool perimeter.

(a) The Department or the local health officer may require floor inlets to be installed in addition to wall inlets if a pool has a width greater than 50 feet, 4.57 meters, to assure thorough chemical distribution. If floor inlets are installed in addition to wall inlets, there must be a minimum of one row of floor inlets centered on the pool width. Individual inlets and rows of inlets shall be spaced a maximum of 15 feet, 4.57 meters, from each other. Floor inlets must be at least 15 feet, 4.57 meters, from a pool wall with wall inlets.

(b) Each inlet must be designed as a directionally adjustable and lockable orifice with sufficient head loss to insure balancing of flow through all inlets. The return loop piping must be sized to provide less than 2.5 feet, 76.20 centimeters, of head loss to the most distant orifice to insure approximately equal flow through all orifices.

(i) Inlets must be locked in place once adjusted for uniform circulation.

(ii) The head loss requirement for orifices may be reduced so long as it can be shown by demonstration that at least a 6:1 pressure ratio from orifice to the return loop is maintained.

(3) If floor inlets from the circulation system are used, they must be flush with the floor. Floor inlets shall be placed at maximum 15 foot, 4.46 meter, intervals. The distance from floor inlets to a pool wall shall not exceed 7.5 feet, 2.29 meters if there are no wall inlets on that wall. Each floor inlet must be designed such that the flow can be adjusted to provide sufficient head loss to insure balancing of flow through all inlets. All floor inlets must be designed such that the flow cannot be adjusted without the use of a special tool to protect against swimmers being able to adjust the flow. The return supply piping must be sized to provide less than 2.5 feet, 76.20 centimeters, of head loss to the most distant orifice to insure approximately equal flow through all orifices.

(a) Inlets must be locked in place once adjusted for uniform circulation.

(b) The head loss requirement for orifices may be reduced so long as it can be shown by demonstration that at least a 6:1 pressure ratio from orifice to the return loop is maintained.

(4) The Department may grant an exemption to the inlet placement requirements on a case by case basis for inlet designs

that can be demonstrated to produce uniform mixing of pool water.

**R392-302-18. Outlets.**

(1) No feature or circulation pump shall be connected to less than two outlets unless the pump is connected to a gravity drain system or the pump is connected to an unblockable drain. All pool outlets shall meet the following design criteria:

(a) The grates or covers of all submerged outlets in pools shall conform to the standards of ANSI/APSP-16 2011, as incorporated in 16 CFR 1450.3 (July 5, 2011).

(b) The outlets must be constructed so that if one of the outlets is completely obstructed, the remaining outlets and related piping will be capable of handling 100 percent of the maximum design circulation flow.

(c) All pool outlets that are connected to a pump through a single common suction line must connect to the common suction line through pipes of equal diameter. The tee feeding to the common suction line from the outlets must be located approximately midway between outlets.

(d) An outlet system with more than one outlet connected to a pump suction line must not have any valve or other means to cut any individual outlet out of the system.

(e) At least one of the circulation outlets shall be located at the deepest point of the pool and must be piped to permit the pool to be completely and easily emptied.

(f) The center of the outlet covers or grates of multiple main drain outlets shall not be spaced more than 30 feet, 9.14 meters, apart nor spaced closer than 3 feet, 0.914 meters, apart.

(g) Multiple pumps may utilize the same outlets only if the outlets are sized to accommodate 100 percent of the total combined design flow from all pumps and only if the flow characteristics of the system meet the requirements of subsection R392-302-18(2) and (3).

(h) There must be one main drain outlet for each 30 feet, 9.14 meters, of pool width. The centers of the outlet covers or grates of any outermost main drain outlets must be located within 15 feet, 4.57 meters, of a side wall.

(i) Devices or methods used for draining pools shall prevent overcharging the sanitary sewer.

(j) No operator shall allow the use of a pool with outlet grates or covers that are broken, damaged, missing, or not securely fastened.

(2) Notwithstanding Section R392-302-3, all public pools must comply with Subsections R392-302-18(2) and (3). The pool operator shall not install, allow the installation of, or operate a pool with a drain, drain cover, or drain grate in a position or an application that conflicts with any of the following mandatory

markings on the drain cover or grate under the standard required in R392-302-18(1)(a):

- (a) whether the drain is for single or multiple drain use;
- (b) the maximum flow through the drain cover; and
- (c) whether the drain may be installed on a wall or a floor.

(3) The pool operator shall not install, allow the installation of, or operate a pool with a drain cover or drain grate unless it is over or in front of:

(a) the sump that is recommended by the drain cover or grate manufacturer;

(b) a sump specifically designed for that drain by a Registered Design Professional as defined in ANSI/APSP-16 2011, as incorporated in 16 CFR 1450.3 (July 5, 2011); or

(c) a sump that meets the ANSI/APSP-16 2011 standard, as incorporated in 16 CFR 1450.3 (July 5, 2011).

(4) Notwithstanding Section R392-302-3, all public pools must comply with this subsection R392-302-18(4). The pool owner or certified pool operator shall retrofit by December 19, 2009 each pool circulation system on existing pools that do not meet the requirements of subsections R392-302-18(1) through R392-302-18(1)(g) and R392-302-18(2) through (3)(c). The owner or operator shall meet the retrofit requirements of this subsection by any of the following means:

(a) Meet the requirements of R392-302-18(1)(a) and R392-302-18(2) through (3)(c) and install a safety vacuum release system which ceases operation of the pump, reverses the circulation flow, or otherwise provides a vacuum release at a suction outlet when it detects a blockage; that has been tested by an independent third party; and that conforms to ASME standard A112.19.17-2010 or ASTM standard F2387-04(2012), as required in the Federal Swimming Pool and Spa Drain Cover Standard, 15 U.S.C. 8003;

(i) To ensure proper operation, the certified pool operator shall inspect and test the vacuum release system at least once a week but no less often than established by the manufacturer. The certified pool operator shall test the vacuum release system in a manner specified by the manufacturer. The certified pool operator shall log all inspections, tests and maintenance and retain the records for a minimum of two years for review by the Department and local health department upon request.

(ii) The vacuum release system shall include a notification system that alerts patrons and the pool operator when the system has inactivated the circulation system. The pool operator shall submit to the local health department for approval the design of the notification systems prior to installation. The system shall activate a continuous clearly audible alarm that can be heard in all areas of the pool or a continuous visible alarm that can be seen in all areas of the pool. A sign that meets the requirements

of a "2 Inch Safety Sign" in R392-302-39(1), (2) and (3) (b) shall be posted next to the sound or visible alarm source. The sign shall state, "DO NOT USE THE POOL IF THIS ALARM IS ACTIVATED." and provide the phone number of the pool operator.

(iii) No operator shall allow the use of a pool that has a single drain with a safety vacuum release system if the safety vacuum release system is not functioning properly.

(b) Install an outlet system that includes no fewer than two suction outlets separated by no less than 3 feet, 0.914 meters, on the horizontal plane as measured from the centers of the drain covers or grates or located on two different planes and connected to pipes of equal diameter. The outlet system shall meet the requirements of R392-302-18(1) (a) through R392-302-18(1) (g) and 18(2) through (3) (c);

(c) Meet the requirements of R392-302-18(1) (a) and R392-302-18(2) through (3) (c) and installing (or having an existing) gravity drain system;

(d) Install an unblockable drain that meets the requirements of R392-302-18(1) (a) and R392-302-18(2) through (3) (c); or

(e) Any other system determined by the federal Consumer Products Safety Commission to be equally effective as, or better than, the systems described in 15 USC 8003 (c) (1) (A) (ii) (I), (III), or (IV) at preventing or eliminating the risk of injury or death associated with pool drainage systems.

#### **R392-302-19. Overflow Gutters and Skimming Devices.**

(1) A pool having a surface area of over 3,500 square feet, 325.15 square meters, must have overflow gutters. A pool having a surface area equal to or less than 3,500 square feet, 325.15 square meters, must have either overflow gutters or skimmers provided.

(2) Overflow gutters must extend completely around the pool, except at steps, ramps, or recessed ladders. The gutter system must be capable of continuously removing pool water at 100 percent of the maximum flow rate. This system must be connected to the circulation system by means of a surge tank.

(3) Overflow gutters must be designed and constructed in compliance with the following requirements:

(a) The opening into the gutter beneath the coping or grating must be at least 3 inches, 7.62 centimeters, in height with a depth of at least 3 inches, 7.62 centimeters.

(b) Gutters must be designed to prevent entrapment of any part of a bather's body.

(c) The edge must be rounded so it can be used as a handhold and must be no thicker than 2.5 inches, 6.35 centimeters, for the top 2 inches, 5.08 centimeters.

(d) Gutter outlet pipes must be at least 2 inches, 5.08

centimeters, in diameter. The outlet grates must have clear openings and be equal to at least one and one-half times the cross sectional area of the outlet pipe.

(4) Skimmers complying with NSF/ANSI 50-2015 standards, which is incorporated by reference, or equivalent are permitted on any pool with a surface area equal to or less than 3,500 square feet, 325.15 square meters. At least one skimming device must be provided for each 500 square feet, 46.45 square meters, of water surface area or fraction thereof. Where two or more skimmers are required, they must be spaced to provide an effective skimming action over the entire surface of the pool.

(5) Skimming devices must be built into the pool wall and must meet the following general specifications:

(a) The piping and other components of a skimmer system must be designed for a total capacity of at least 80 percent of the maximum flow rate of the circulation system.

(b) Skimmers must be designed with a minimum flow rate of 25 gallons, 94.64 liters, per minute and a maximum flow rate of 55 gallons, 208.12 liters, per minute. The local health department may allow a higher maximum flow through a skimmer up to the skimmer's NSF rating if the piping system is designed to accommodate the higher flow rates. Alternatively, skimmers may also be designed with a minimum of 3.125 gallons, 11.83 liters, to 6.875 gallons, 26.02 liters, per lineal inch, 2.54 centimeters, of weir.

(6) Each skimmer weir must be automatically adjustable and must operate freely with continuous action to variations in water level over a range of at least 4 inches, 10.16 centimeters. The weir must operate at all flow variations. Skimmers shall be installed with the normal operating level of the pool water at the midpoint of the skimmer opening or in accordance with the manufacturer's instructions.

(7) An easily removable and cleanable basket or screen through which all overflow water passes, must be provided to trap large solids.

(8) The skimmer must be provided with a system to prevent air-lock in the suction line. The anti-air-lock may be accomplished through the use of an equalizer pipe or a surge tank or through any other arrangement approved by the Department that will assure a sufficient amount of water for pump suction in the event the pool water drops below the weir level. If an equalizer pipe is used, the following requirements must be met:

(a) An equalizer pipe must be sized to meet the capacity requirements for the filter and pump;

(b) An equalizer pipe may not be less than 2 inches, 5.08 centimeters, in diameter and must be designed to control velocity through the pipe in accordance with section R392-302-16(3);



(c) This pipe must be located at least 1 foot, 30.48 centimeters, below a valve or equivalent device that will remain tightly closed under normal operating conditions. In a shallow pool, such as a wading pool, where an equalizer outlet can not be submerged at least one foot below the skimmer valve, the equalizer pipe shall be connected to a separate dedicated outlet with an anti-entrapment outlet cover in the floor of the pool that meets the requirements of ANSI/APSP-16 2011, as incorporated in 16 CFR 1450.3 (July 5, 2011); and

(d) The equalizer pipe must be protected with a cover or grate that meets the requirements of ANSI/APSP-16 2011, as incorporated in 16 CFR 1450.3 (July 5, 2011), and is sized to accommodate the design flow requirement of R392-302-19(5).

(9) The operator shall maintain proper operation of all skimmer weirs, float valves, check valves, and baskets. Skimmer baskets shall be maintained in a clean and sanitary condition.

(10) Where skimmers are used, a continuous handhold is required around the entire perimeter of the pool except in areas of the pool that are zero depth and shall be installed not more than 9 inches, 2.86 centimeters, above the normal operating level of the pool. The decking, coping, or other material may be used as the handhold so long as it has rounded edges, is slip-resistant, and does not exceed 3.5 inches, 8.89 centimeters, in thickness. The overhang of the coping, decking, or other material must not exceed 2 inches, 5.08 centimeters, nor be less than 1 inch, 2.54 centimeters beyond the pool wall. An overhang may be up to a maximum of 3 inches to accommodate an automatic pool cover track system.

#### **R392-302-20. Filtration.**

(1) The filter system must provide for isolation of individual filters for backwashing or other service.

(2) The filtration system must be designed to allow the pool operator to easily observe the discharge backwash water from the filter in order to determine if the filter cells are clean.

(3) A public pool must use either a rapid sand filter, hi-rate sand filter, precoat media filter, a cartridge filter or other filter types deemed equivalent by the Department. All filters must comply with the standard NSF/ANSI 50-2015, which is incorporated by reference.

(4) Gravity and pressure rapid sand filter requirements.

(a) Rapid sand filters must be designed for a filter rate of 3 gallons, 11.36 liters, or less, per minute per square foot, 929 square centimeters, of bed area at time of maximum head loss. The filter bed surface area must be sufficient to meet the design rate of flow required by Section R392-302-16, Table 1, for required turnover.

(b) The filter system must be provided with influent pressure, vacuum, or compound gauges to indicate the condition of the filters. Air-relief valves must be provided at or near the high point of the filter or piping system.

(c) The filter system must be designed with necessary valves and piping to permit:

- (i) filtering of all pool water;
- (ii) individual backwashing of filters to a sanitary sewer at a minimum rate of 15 gallons, 56.78 liters, per minute per square foot, 929 square centimeters, of filter area;
- (iii) isolation of individual filters;
- (iv) complete drainage of all parts of the system;
- (v) necessary maintenance, operation and inspection in a convenient manner.

(d) Each pressure type filter tank must be provided with an access opening of at least a standard size 11 inch, 27.94 centimeters, by 15 inch, 38.10 centimeters, manhole with a cover.

(5) Hi-rate sand filter requirements.

(a) Hi-rate sand filters must be designed for a filter rate of less than 18 gallons, 68.14 liters, per minute per square foot, 929 square centimeters, of bed area. The filter bed area must be sufficient to meet the design rate of flow required by Section R392-302-16, Table 1, for required turnover. Minimum flow rates must be at least 13 gallons, 49.21 liters, per minute per square foot, 929 square centimeters, of bed area. The minimum flow rate requirement may be reduced to a rate of no less than 10 gallons per minute per square foot of bed area where a multiple filter system is provided, and where the system includes a valve or other means after the filters which is designed to regulate the backwash flow rate and to assure that adequate backwash flow can be achieved through each filter per the filter manufacturer's requirements.

(b) The filter tank and all components must be installed in compliance with the manufacturer's recommendations.

(c) An air-relief valve must be provided at or near the high point of the filter.

(d) The filter system must be provided with an influent pressure gauge to indicate the condition of the filter.

(6) Vacuum or pressure type precoat media filter requirements.

(a) The filtering area must be compatible with the design pump capacity as required by R392-302-16(7). The design rate of filtration may not exceed 2.0 gallons per minute per square foot, 7.57 liters per 929 square centimeters, of effective filtering surface without continuous body feed, nor greater than 2.5 gallons per minute per square foot, 9.46 liters per 929 square centimeters, with continuous body feed.

(b) Where body feed is provided, the feeder device must be accurate to within 10 percent, must be capable of continual feeding within a calibrated range, and must be adjustable from two to six parts per million. The device must feed at the design capacity of the circulation pump.

(c) Where fabric is used, filtering area must be determined on the basis of effective filtering surfaces.

(d) The filter and all component parts must be designed and constructed of materials which will withstand normal continuous use without significant deformation, deterioration, corrosion or wear which could adversely affect filter operations.

(e) If a precoat media filter is supplied with a potable water supply, then the water must be delivered through an air gap.

(f) The filter plant must be provided with influent pressure, vacuum, or compound gauges to indicate the condition of the filter. In vacuum-type filter installations where the circulating pump is rated at two horsepower or higher, an adjustable high vacuum automatic shut-off device must be provided to prevent damage to the pump. Air-relief valves must be provided at or near the high point of the filter system.

(g) A filter must be designed to facilitate cleaning by one or more of the following methods: backwashing, air-bump-assist backwashing, automatic or manual water spray, or agitation.

(h) The filter system must provide for complete and rapid draining of the filter.

(i) Diatomaceous earth filter backwash water must discharge to the sanitary sewer system through a separation tank. The separation tank must have a sign that meets the requirements of a "2 Inch Safety Sign" in R392-302-39(1), (2) and (3)(b) warning the user not to start up the filter pump without first opening the air relief valve.

(j) Personal protection equipment suitable for preventing inhalation of diatomaceous earth or other filter aids must be provided.

(7) The Department may waive NSF/ANSI 50-2015, which is incorporated by reference, standards for precoat media filters and approve site-built or custom-built vacuum precoat media filters, if the precoat media filter elements are easily accessible for cleaning by hand hosing after each filtering cycle. Site-built or custom-built vacuum precoat media filters must comply with all design requirements as specified in Subsection R392-302-20(6). Any design which provides the equivalent washing effectiveness as determined by the Department may be acceptable. Where the Department or the local health department determines that a potential cross-connection exists, a hose bib in the vicinity of the filter to facilitate the washing operation must be equipped with a vacuum breaker listed by the International Association of

Plumbing and Mechanical Officials, IAPMO, the American Society of Sanitary Engineering, A.S.S.E., or other nationally recognized standard.

(8) Vacuum or pressure type cartridge filter requirements.

(a) Sufficient filter area must be provided to meet the design pump capacity as required by Subsection R392-302-16, Table 1.

(b) The designed rate of filtration may not exceed 0.375 gallons, 1.42 liters, per minute per square foot, 929 square centimeters, of effective filter area.

(c) The filter and all component parts must be designed and constructed of materials which will withstand normal continuous use without significant deformation, deterioration, corrosion or wear which could adversely affect filter operations. The filter element must be constructed of polyester fiber only.

(d) The filter must be fitted with influent and effluent pressure gauges, vacuum, or compound gauges to indicate the condition of the filter. In vacuum type filter installations where the circulating pump is rated at two horsepower or higher, an adjustable high vacuum automatic shut-off must be provided to prevent damage to the pump. Air-relief valves must be provided at or near the high point of the filter system.

(e) Cleaning of cartridge type filters must be accomplished in accordance with the manufacturer's recommendations.

#### **R392-302-21. Disinfectant and Chemical Feeders.**

(1) A pool must be equipped with disinfectant dosing or generating equipment which conform to the NSF/ANSI 50-2015, which is incorporated by reference, standards relating to mechanical chemical feeding equipment, or be deemed equivalent by the Department.

(2) All chlorine dosing and generating equipment, including erosion feeders, or in-line electrolytic and brine/bath generators, shall be designed with a capacity to provide the following, depending on the intended use:

(a) Outdoor pools: 4.0 pounds of free available chlorine per day per 10,000 gallons of pool water; or

(b) Indoor pools: 2.5 pounds of free available chlorine per day per 10,000 gallons of pool water.

(3) Where oxidation-reduction potential controllers are used, the operator shall perform supervisory water testing, calibration checks, inspection and cleaning of sensor probes and chemical injectors in accordance with the manufacturer's recommendations. If specific manufacturer's recommendations are not made, the operator shall perform inspections, calibration checks, and cleaning of sensor probes at least weekly.

(4) Where compressed chlorine gas is used, the following

additional features must be provided:

(a) Chlorine and chlorinating equipment must be located in a secure, well-ventilated enclosure separate from other equipment systems or equipment rooms. Such enclosures may not be below ground level. If an enclosure is a room within a building, it must be provided with vents near the floor which terminate at a location out-of-doors. Enclosures must be located to prevent contamination of air inlets to any buildings and areas used by people. Forced air ventilation capable of providing at least one complete air change per minute, must be provided for enclosures.

(b) The operator shall not keep substances which are incompatible with chlorine in the chlorine enclosure.

(c) The operator shall secure chlorine cylinders to prevent them from falling over. The operator shall maintain an approved valve stem wrench on the chlorine cylinder so the supply can be shut off quickly in case of emergency. The operator shall keep valve protection hoods and cap nuts in place except when the cylinder is connected.

(d) A sign that meets the requirements of a "4 Inch Safety Sign" in R392-302-39(1), (2) and (3)(a) shall be attached to the entrance door to chlorine gas and equipment rooms that reads, "DANGER CHLORINE GAS" and display the United States Department of Transportation placard and I.D. number for chlorine gas.

(e) The chlorinator must be designed so that leaking chlorine gas will be vented to the out-of-doors.

(f) The chlorinator must be a solution feed type, capable of delivering chlorine at its maximum rate without releasing chlorine gas to the atmosphere. Injector water must be furnished from the pool circulation system with necessary water pressure increases supplied by a booster pump. The booster must be interlocked with both the pool circulation pump and with a flow switch on the return line.

(g) Chlorine feed lines may not carry pressurized chlorine gas.

(h) The operator shall keep an unbreakable bottle of ammonium hydroxide, of approximately 28 percent solution in water, readily available for chlorine leak detection.

(i) A self-contained breathing apparatus approved by NIOSH for entering environments that are immediately dangerous to life or health must be available and must have a minimum capacity of fifteen minutes.

(j) The breathing apparatus must be kept in a closed cabinet located outside of the room in which the chlorinator is maintained, and must be accessible without use of a key or lock combination.

(k) The facility operator shall demonstrate to the local health department through training documentation, that all persons

who operate, or handle gas chlorine equipment, including the equipment specified in Subsections R392-203-21(3)(h) and (i) are knowledgeable about safety and proper equipment handling practices to protect themselves, staff members, and the public from accidental exposure to chlorine gas.

(1) The facility operator or his designee shall immediately notify the local health department of any inadvertent escape of chlorine gas.

(5) Bactericidal agents, other than chlorine and bromine, and their feeding apparatus may be acceptable if approved by the Department. Each bactericidal agent must be registered by the U.S. Environmental Protection Agency for use in swimming pools.

(6) Equipment of the positive displacement type and piping used to apply chemicals to the water must be sized, designed, and constructed of materials which can be cleaned and maintained free from clogging at all times. Materials used for such equipment and piping must be resistant to the effects of the chemicals in use.

(7) Notwithstanding Subsection R392-302-3(1), all pools must comply with Subsection 21(7) by January 31, 2023. All chemical feed systems must include two layers of interlocking protection for a low or no flow condition so that the operation of the chemical feeders is dependent upon the operational flow of the main circulation system. The functionality of the interlocking shall be verified by the operator and documented to the local health department. This interlocking shall be accomplished through an electrical interlock consisting of both:

(a) A flow meter or flow switch at the chemical controller; and

(b) Chemical feeders wired electrically to the circulation system. This may include the use of a differential pressure switch, a pump power monitor, or other suitable means.

#### **R392-302-22. Safety Requirements and Lifesaving Equipment.**

(1) Areas of a public pool with water depth greater than six feet or a width greater than forty feet and a depth greater than four feet where a lifeguard is required under Subsection R392-302-30(2) shall provide for a minimum number of elevated lifeguard stations in accordance with Table 2. Elevated lifeguard stations shall be located to provide a clear unobstructed view of the pool bottom by lifeguards on duty.

(2) A public pool must have at least one unit of lifesaving equipment. One unit of lifesaving equipment must consist of the following: a Coast Guard-approved ring buoy with an attached rope equal in length to the maximum width of the pool plus 10 feet and a life pole or shepherd's crook type pole with blunted ends and a minimum length of 12 feet, 3.66 meters. The facility operator may substitute a rescue tube for a ring buoy, a shepherd crook, and a

life pole where lifeguard service is provided. Additional units must be provided at the rate of one for each 2,000 square feet, 185.8 square meters, of surface area or fraction thereof. The operator of a pool that has lifeguard services shall provide at least one backboard designed with straps and head stabilization capability.

(3) A public pool must be equipped with a first aid kit which includes a minimum of the following items:

- 2 Units eye dressing packet;
- 2 Units triangular bandages;
- 1 CPR shield;
- 1 scissors;
- 1 tweezers;
- 6 pairs disposable medical exam gloves; and

Assorted types and sizes of the following: self adhesive bandages, compresses, roller type bandages and bandage tape.

(a) The operator shall keep the first-aid kit filled, available, and ready for use.

(4) Lifesaving equipment must be mounted in readily accessible, conspicuous places around the pool deck. The operator shall maintain it in good repair and operable condition. The operator and lifeguards shall prevent the removal of lifesaving equipment or use of it for any reason other than its intended purpose.

(5) Where no lifeguard service is provided in accordance with Subsection R392-302-30(2), a warning sign that meets the requirements of a "4 Inch Safety Sign" in R392-302-39(1), (2) and (3)(a) shall be posted. The sign shall state: WARNING - NO LIFEGUARD ON DUTY. In addition, the sign shall state in text that meets the requirements of "2 Inch Safety Sign" in R392-302-39(1), (2) and (3)(b) "BATHERS SHOULD NOT SWIM ALONE", and CHILDREN 14 AND UNDER SHALL NOT USE POOL WITHOUT RESPONSIBLE ADULT SUPERVISION.

(6) Where lifeguard service is required, the facility must have a readily accessible area designated and equipped for emergency first aid care.

TABLE 2

Safety Equipment		
	POOLS WITH LIFEGUARD	POOLS WITH NO LIFEGUARD
Elevated Station	1 per 2,000 sq. ft., 185 sq. meters,	None

	of pool area or fraction	
Backboard	1 per facility	None
Room for Emergency Care	1 per facility	None
Ring Buoy with an attached rope equal in length to the maximum width of the pool plus 10 feet, 3.05 meters	None	1 per 2,000 sq. ft., 185 sq. meters, of pool area or fraction
Rescue Tube (used as a substitute for ring buoys, shepherd crook, lifepole when lifeguards are present)	1 per 2,000	None
Life Pole or Shepherds Crook	None	1 per 2,000 sq. ft. 185, sq. meters, of pool area or fraction
First Aid Kit	1 per facility	1 per facility

**R392-302-23. Lighting, Ventilation and Electrical Requirements.**

(1) A pool constructed after September 16, 1996 may not be used for night swimming in the absence of underwater lighting. The local health officer may grant an exemption to this if the pool operator demonstrates that a 6 inch, 15.24 centimeters, diameter black disk on a white background placed in the deepest part of the pool can be clearly observed from the pool deck during night time hours. The local health department shall keep a record of this exemption on file. The pool operator shall keep a record of this exemption on file at the facility.

(2) Where night swimming is permitted and underwater lighting is used, artificial lighting shall be provided so that all areas of the pool, including the deepest portion of the pool shall be visible. Underwater lights shall provide illumination equivalent to 0.5 watt of incandescent lamp light per square foot, 0.093 square meter, of pool water surface area. The Local Health Officer may waive underwater lighting requirements if overhead



lighting provides a minimum of 15 foot candles, 161 lux, illumination over the entire pool surface.

(3) Where night swimming is permitted and underwater luminaires are used, area lighting must be provided for the deck areas and directed away from the pool surface as practical to reduce glare. The luminance must be at least 5 horizontal foot candles of light per square foot, 929 square centimeters, of deck area, but less than the luminance level for the pool shell.

(4) Electrical wiring must conform with Article 680 of the National Electrical Code as incorporated under Title 15a, State Construction and Fire Codes Act.

(a) Wiring may not be routed under a pool or within the area extending 5 feet, 1.52 meters, horizontally from the inside wall of the pool as provided in Article 680 of the National Electric Code as incorporated under Title 15a, State Construction and Fire Codes Act, without the written approval of the Department. The Department may deny the installation and use of any electrical appliance, device, or fixture, if its power service is routed under a pool or within the area extending 5 feet, 1.52 meters, horizontally from the inside wall of the pool, except in the following circumstances;

- (i) For underwater lighting,
- (ii) electrically powered automatic pool shell covers, and
- (iii) competitive judging, timing, and recording apparatus.

(5) Buildings containing indoor pools, pool equipment rooms, access spaces, bathhouses, dressing rooms, shower rooms, and toilet spaces must be ventilated in accordance with American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 62.1-2016, which is incorporated and adopted by reference.

#### **R392-302-24. Dressing Rooms.**

(1) The operator shall maintain all areas and fixtures within dressing rooms in an operable, clean and sanitary condition.

(2) Where dressing rooms are provided, the entrances and exits must be designed to break the line of sight into the dressing areas from other locations.

(3) Dressing rooms must be constructed of materials that have smooth, non-slip surfaces, and are impervious to moisture.

(4) Floors must slope to a drain and be constructed to prevent accumulation of water.

(5) Carpeting may not be installed on dressing room floors.

(6) Junctions between walls and floors must be coved.

(7) Partitions between dressing cubicles must be raised at least 10 inches, 25.4 centimeters, above the floor or must be placed on continuous raised masonry or concrete bases at least 4

inches, 10.16 centimeters, high.

(8) Lockers must be set either on solid masonry bases 4 inches, 10.16 centimeters, high or on legs elevating the bottom locker at least 10 inches, 25.4 centimeters, above the floor.

(a) Lockers must have louvers for ventilation.

(9) At least one covered waste receptacle must be provided in each dressing room.

#### **R392-302-25. Restroom and Shower Facilities.**

(1) The facility shall provide patrons access to a restroom with shower facilities in accordance with Table 4. These must be:

(a) located with convenient access for bathers; and

(b) located no further than 150 feet, 45.7 meters, from the pool deck; and

(c) designed to break the line of sight into the restroom and shower facilities.

(2) The minimum number of toilets and showers must be based upon the designed maximum bather load. A minimum of two unisex facilities, or one for each gender, must be provided with access to the pool deck.

(a) Required numbers of fixtures must be based upon 50 percent of the total number of bathers being male and 50 percent being female, except where the facility is used exclusively by one gender.

(b) The minimum number of sanitary fixtures must be in accordance with Table 4 except as stated in R392-302-25(2)(b)(i).

(i) The local health department may reduce the minimum number of fixtures required by considering the number of fixtures available within 150 feet, 45.7 meters, of the pool deck. The minimum number of toilets with showers may not be reduced to less than two for unisex, or one for each gender, except where the bather load is 25 or less, in which case the minimum may be one unisex restroom with shower facility.

TABLE 4

#### **Sanitary Fixture Minimum Requirements**

##### **Water Closets**

Male	Female
1:1 to 25	1:1 to 25
2:26 to 75	2:26 to 75
3:76 to 125	3:76 to 125
4:126 to 200	4:126 to 200
5:201 to 300	5:201 to 300

Over 400, add one fixture for each additional 200 males or 150 females.

Where urinals are provided, one water closet less than the number specified may be provided for each urinal installed, except the number of water closets in such cases may not be reduced to less than one half of the minimum specified.

(3) Lavatories must be provided on the basis of one for each water closet up to four, then one for each two additional water closets.

(4) The facility shall provide showers for each gender and shall enclose these showers for privacy. A minimum of one shower head for each gender must be provided for each 50 bathers or fraction thereof.

(a) Potable water must be provided at all shower heads. Water heaters and thermostatically controlled mixing valves must be inaccessible to bathers and must be capable of providing 2 gallons per minute, 7.57 liters per minute, of 90 degree F. water to each shower head for each bather.

(5) If unisex facilities are provided they may count toward the total number of required fixtures in this section as long as the unisex facilities are provided in multiples of two, unless as specified in R392-302-25(2)(b)(i).

(6) Soap must be dispensed at all lavatories and showers.

(a) Soap dispensers must be constructed of metal or plastic.

(b) Use of bar soap or any communal soap item is prohibited.

(c) Disposable towels or air dryers must be provided for all lavatories.

(7) Fixtures must be designed so that they may be readily cleaned. Fixtures must withstand frequent cleaning and disinfecting.

(8) The operator shall maintain all areas and fixtures within restroom facilities in an operable, clean and sanitary condition.

(9) Restroom and shower facilities must be constructed of materials that have smooth, non-slip surfaces, and are impervious to moisture.

(10) Floor must slope to a drain and be constructed to prevent accumulation of water.

(11) Carpeting may not be installed on restroom and shower floors.

(12) Junctions between walls and floors must be coved.

(13) At least one covered waste receptacle must be provided

in each restroom.

**R392-302-26. Visitor and Spectator Areas.**

(1) Visitors, spectators, or animals may not be allowed within 10 feet, 3.05 meters, of the pool. Service animals are exempt from this requirement.

(2) Food or drink is prohibited within ten feet, 3.05 meters, of the pool. Beverages must be served in non-breakable containers.

(3) Trash containers must be provided in visitor and spectator areas. The entire area must be kept free of litter and maintained in a clean, sanitary condition.

**R392-302-27. Disinfection and Quality of Water.**

(1) Disinfection Process.

(a) A pool must be continuously disinfected by a product which:

(i) Is registered with the United States Environmental Protection Agency as a disinfecting process or disinfectant product for water;

(ii) Imparts a disinfectant residual which may be easily and accurately measured by a field test procedure appropriate to the disinfectant in use;

(iii) Is compatible for use with other chemicals normally used in pool water treatment;

(iv) Does not create harmful or deleterious effects on bathers if used according to manufacturer's specifications; and

(v) Does not create an undue safety hazard if handled, stored and used according to manufacturer's specifications.

(b) The concentration levels of the active disinfectant within the pool water shall be consistent with the label instructions of the disinfectant and with the minimum levels listed in Table 6 for all circumstances, bather loads, and the pH level of the water.

(i) At no time shall the concentration level of free available chlorine reach a level above ten parts per million while the facility is open to bathers.

(2) Products used to treat or condition pool water shall be used according to the product label.

(3) Testing Kits.

(a) An easy to operate pool-side disinfectant testing kit, compatible with the disinfectant in use and accurate to within 0.5 milligrams per liter, must be provided at each pool.

(b) If chlorine is the disinfectant used, it must be tested by the diethyl-p-phenylene diamine method, the leuco crystal violet method, or another test method approved by the Department.

(c) If cyanuric acid or stabilized chlorine is used, a

testing kit for cyanuric acid, accurate to within 10.0 milligrams per liter must be provided.

(d) Expired test kit reagents may not be used.

(4) Chemical Quality of Water.

(a) If cyanuric acid is used to stabilize the free residual chlorine, or if one of the chlorinated isocyanurate compounds is used as the disinfecting chemical, the concentration of cyanuric acid in the water must be at least ten milligrams per liter, but may not exceed 100 milligrams per liter.

(b) The difference between the total chlorine and the free chlorine in a pool shall not be greater than 0.5 milligrams per liter. If the concentration of combined residual chlorine is greater than 0.5 milligrams per liter the operator shall breakpoint chlorinate the pool water to reduce the concentration of combined chlorine.

(c) Total dissolved solids shall not exceed 1,500 milligrams per liter over the startup total dissolved solids of the pool water.

(d) Total alkalinity must be within the range from 100 to 125 milligrams per liter for a plaster lined pool, 80 to 150 milligrams per liter for a spa pool lined with plaster, and 125 to 150 milligrams per liter for a pool lined with other approved construction materials.

(e) A calcium hardness of at least 200 milligrams per liter must be maintained.

(f) The saturation index value of the pool water must be within the range of positive 0.3 and minus 0.3. The saturation index shall be calculated in accordance with Table 5.

(5) Water Clarity and Temperature.

(a) The water must have sufficient clarity at all times that the drain grates or covers in the deepest part of the pool are readily visible. As an alternative test for clarity, a black disk, six inches in diameter, must be readily visible if placed on a white field in the deepest part of the pool.

(b) Pool water temperatures for general use should be within the range of 82 degrees Fahrenheit, 28 degrees Celsius, to 86 degrees Fahrenheit, 30 degrees Celsius.

(c) The minimum water temperature for a pool is 78 degrees Fahrenheit, 26 degrees Celsius.

(d) The local health department may grant exemption to the pool water temperature requirements for a special purpose pool including a cold plunge pool, but may not exempt maximum hot water temperatures for a spa pool.

TABLE 5

CHEMICAL VALUES AND FORMULA FOR CALCULATING SATURATION INDEX

The formula for calculating the saturation index is:

$$SI = pH + TF + CF + AF - TDSF$$

SI means saturation index

TF means temperature factor

CF means calcium factor

mg/l means milligrams per liter

deg F means degrees Fahrenheit

AF means alkalinity factor

TDSF means total dissolved solids factor.

Temperature		Calcium Hardness		Total Alkalinity	
deg. F	TF	mg/l	CF	mg/l	AF
32	0.0	25	1.0	25	1.4
37	0.1	50	1.3	50	1.7
46	0.2	75	1.5	75	1.9
53	0.3	100	1.6	100	2.0
60	0.4	125	1.7	125	2.1
66	0.5	150	1.8	150	2.2
76	0.6	200	1.9	200	2.3
84	0.7	250	2.0	250	2.4
94	0.8	300	2.1	300	2.5
105	0.9	400	2.2	400	2.6
128	1.0	800	2.5	800	2.9

Total Dissolved Solids

mg/l	TDSF
0 to 999	12.1
1000 to 1999	12.2
2000 to 2999	12.3
3000 to 3999	12.4
4000 to 4999	12.5
5000 to 5999	12.55
6000 to 6999	12.6
7000 to 7999	12.65
each additional 1000, add	.05

If the SATURATION INDEX is 0, the water is chemically in balance.

If the INDEX is a minus value, corrosive tendencies are indicated.

If the INDEX is a positive value, scale-forming tendencies are indicated.

EXAMPLE: Assume the following factors:  
pH 7.5; temperature 80 degrees F, 19 degrees C;  
calcium hardness 235; total alkalinity 100; and total dissolved  
solids 999.  
pH = 7.5  
TF = 0.7  
CF = 1.9  
AF = 2.0  
TDSF = 12.1  
TOTAL:  $7.5 + 0.7 + 1.9 + 2.0 - 12.1 = 0.0$   
This water is balanced.

TABLE 6

DISINFECTANT LEVELS AND CHEMICAL PARAMETERS

	POOLS	SPAS	SPECIAL PURPOSE
Stabilized Chlorine(2) (milligrams per liter)			
pH 7.2 to 7.6	2.0 (1)	3.0 (1)	2.0 (1)
pH 7.7 to 8.0	3.0 (1)	5.0 (1)	3.0 (1)
Non-Stabilized Chlorine(2) (milligrams per liter)			
pH 7.2 to 7.6	1.0 (1)	2.0 (1)	2.0 (1)
pH 7.7 to 8.0	2.0 (1)	3.0 (1)	3.0 (1)
Bromine (milligrams per liter)	4.0 (1)	4.0 (1)	4.0 (1)
Iodine (milligrams per liter)	1.0 (1)	1.0 (1)	1.0 (1)
pH	7.2 to 7.8	7.2 to 7.8	7.2 to 7.8
Total Dissolved Solids (TDS) over start-up TDS (milligrams per liter)	1,500	1,500	1,500
Cyanuric Acid (milligrams per liter)	10 to 100	10 to 100	10 to 100
Maximum Temperature (degrees Fahrenheit)	104	104	104
Calcium Hardness (milligrams per liter as calcium carbonate)	200 (1)	200 (1)	200 (1)
Total Alkalinity (milligrams per liter as calcium carbonate)			
Plaster Pools	100 to 125	80 to 150	100 to 125

Painted or Fiberglass Pools	125 to 150	80 to 150	125 to 150
Saturation Index (see Table 5)	Plus or Minus 0.3	Plus or Minus 0.3	Plus or Minus 0.3
Chloramines (combined chlorine residual, milligrams per liter)	0.5	0.5	0.5

Note (1): Minimum Value

Note (2): Maximum value of free chlorine is ten milligrams per liter as stated in Subsection 27(1)(b)(i).

(6) Pool Water Sampling and Testing.

(a) At the direction of the Local Health Officer, the pool operator or a representative of the local health department shall collect a pool water sample from each public pool at least once per month or at a more frequent interval as determined by the Local health Officer. A seasonal public pool during the off season and any public pool while it is temporarily closed, if the pool is closed for an interval exceeding half of that particular month, are exempt from the requirement for monthly sampling. The operator or local health department representative shall submit the pool water sample to a laboratory approved under R444-14 to perform total coliform and heterotrophic plate count testing.

(b) The operator or local health department shall have the laboratory analyze the sample for total coliform and heterotrophic plate count using methods allowed under R444-14-4.

(c) If the operator submits the sample as required by local health department, the operator shall require the laboratory to report sample results within five working days to the local health department and operator.

(d) A pool water sample fails bacteriological quality standards if it:

(i) Contains more than 200 bacteria per milliliter, as determined by the heterotrophic plate count or

(ii) Shows a positive test for presence of coliform or contains more than 1.0 coliform organisms per 100 milliliters.

(e) Not more than 1 of 5 samples may fail bacteriological quality standards. Failure of any bacteriological water quality sample shall require submission of a second sample within one lab receiving day after the sample report has been received.

**R392-302-28. Cleaning Pools.**

(1) The operator shall clean the bottom of the pool as often as needed to keep the pool free of visible dirt.

(2) The operator shall clean the surface of the pool as



often as needed to keep the pool free of visible scum or floating matter.

(3) The operator shall keep all pool shell surfaces, handrails, floors, walls, and ceilings of rooms enclosing pools, dressing rooms and equipment rooms clean, sanitary, and in good repair.

(4) The operator shall respond to all discovered releases of fecal matter into a public pool in accordance with the following protocol: Centers for Disease Control and Prevention. Fecal Accident Response Recommendations for Pool Staff and Notice to Readers--Revised Guidance for Responding to Fecal Accidents in Disinfected Swimming Venues. Morbidity Mortality Weekly Report February 15, 2008 Volume 57, pages 151-152 and May 25, 2001 Volume 50, pages 416-417, which are incorporated by reference. The operator shall include in the records required in R392-302-29(2) information about all fecal matter releases into a public pool. The records shall include date, time, and where the fecal matter was discovered; whether the fecal matter was loose or solid; and the responses taken. The Local Health Officer may approve the alteration of the required Centers for Disease Control protocol for the hyperchlorination step for a loose fecal release if an operator is able to achieve a 99.9 percent kill or removal of cryptosporidium oocysts in the entire pool system by another method such as ultraviolet light, ozone, or enhanced filtration prior to allowing bathers to reenter the pool.

#### **R392-302-29. Supervision of Pools.**

(1) Public pools must be supervised by an operator that is certified or recertified by a program of training and testing that is approved by the Utah Department of Health. The local health department may determine the appropriate numbers of pools any one certified operator may supervise using criteria based on pool compliance history, local considerations of time and distance, and the individual operator's abilities.

(2) The pool operator must keep written records of all information pertinent to the operation, maintenance and sanitation of each pool facility. Records must be available at the facility and be readily accessible. The pool operator must make records available to the Department or the local health department having jurisdiction upon their request. These records must include disinfectant residual in the pool water, pH and temperature of the pool water, pool circulation rate, quantities of chemicals and filter aid used, filter head loss, filter washing schedule, cleaning and disinfecting schedule for pool decks and dressing rooms, occurrences of fecal release into the pool water or onto the pool deck, bather load, and other information required by the local health department. The pool operator must keep the records

at the facility, for at least two operating seasons.

(3) The public pool owner, in consultation with the qualified operator designated in accordance with R392-302-29(1), shall develop an operation, maintenance and sanitation plan for the pool that will assure that the pool water meets the sanitation and quality standards set forth in this rule. The plan shall be in writing and available for inspection by the local health department. At a minimum the plan shall include the frequency of measurements of pool disinfectant residuals, pH and pool water temperature that will be taken. The plan shall also specify who is responsible to take and record the measurements.

(4) If the public pool water samples required in Section R392-302-27(5) fail bacteriological quality standards as defined in Section R392-302-27(5), the local health department shall require the public pool owner and qualified operator to develop an acceptable plan to correct the problem. The local health department may require more frequent water samples, additional training for the qualified operator and also may require that:

(a) the pool operator measure and record the level of disinfectant residuals, pH, and pool water temperature four times a day (if oxidation reduction potential technology is used in accordance with this rule, the local health department may reduce the water testing frequency requirement) or

(b) the pool operator read flow rate gauges and record the pool circulation rate four times a day.

(5) Bather load must be limited if necessary to insure the safety of bathers and pool water quality as required in Section R392-302-27.

(6) A sign that meets the requirements of a "2 Inch Safety Sign" in R392-302-39(1), (2) and (3)(b) must be posted in the immediate vicinity of the pool stating the location of the nearest telephone and emergency telephone numbers which shall include 911 or other local emergency numbers.

### **R392-302-30. Supervision of Bathers.**

(1) Access to the pool must be prohibited when the facility is not open for use.

(2) Lifeguard service must be provided at a public pool if direct fees are charged or public funds support the operation of the pool. If a public pool is normally exempt from the requirement to provide lifeguard services, but is used for some purpose that would require lifeguard services, then lifeguard services are required during the period of that use. For other pools, lifeguard service must be provided, or signs must be clearly posted indicating that lifeguard service is not provided.

(3) The Department shall approve programs which provide training and certifications to lifeguards. These programs shall

meet the standards set in Subsection R392-302-30(4)(a).

(4) A lifeguard must:

(a) Obtain training and certification in:

(i) lifeguarding by the American Red Cross or an equivalent program; and

(ii) professional level skills in CPR, AED use, and other resuscitation skills consistent with the 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care; and

(iii) first aid consistent with the 2010 American Heart Association Guidelines for First Aid.

(b) Be on duty at all times when the pool is open to use by bathers, except as provided in Subsection R392-302-30(2); and

(c) Have full authority to enforce all rules of safety and sanitation.

(5) A lifeguard shall not have any other duties to perform other than the supervision and safety of bathers while he or she is assigned lifeguarding duties.

(6) Where lifeguard service is required, the number of lifeguards must be sufficient to allow for continuous supervision of all bathers, and surveillance over total pool floor areas.

(7) Lifeguards must be relieved in the rotation of lifeguarding responsibilities at least every 30 minutes with a work break of at least 10 minutes every hour.

(8) The facility operator and staff are responsible for the enforcement of the following personal hygiene and behavior rules:

(a) A bather using the facility must take a cleansing shower before entering the pool enclosure. A bather leaving the pool to use the toilet must take a second cleansing shower before returning to the pool enclosure.

(b) The operator and lifeguards shall exclude any person having a communicable disease transmissible by water from using the pool. A person having any exposed sub-epidermal tissue, including open blisters, cuts, or other lesions may not use a public pool. A person who has or has had diarrhea within the last two weeks caused by an unknown source or from any communicable or fecal-borne disease may not enter any public pool.

(c) Any child under three years old, any child not toilet trained, and anyone who lacks control of defecation shall wear a water resistant swim diaper and waterproof swimwear. Swim diapers and waterproof swimwear shall have waist and leg openings fitted such that they are in contact with the waist or leg around the entire circumference.

(d) Running, boisterous play, or rough play, except supervised water sports, are prohibited.

(e) Where no lifeguard service is provided, children 14 and under shall not use a pool without responsible adult supervision.

Children under the age of five shall not use a spa or hot tub.

(f) The lifeguards and operator shall ensure that diapers shall be changed only in restrooms not at poolside. The person or persons who change the diaper must wash their hands thoroughly with soap before returning to the pool. The diapered person using a swim diaper and waterproof swimwear discussed in subsection R392-302-30(7)(c) above must undergo a cleansing shower before returning to the pool.

(f) Placards that meet the requirements of "Rule Sign" in R392-302-39(1), (2) and (3)(c) and embody the above rules of personal hygiene and behavior must be conspicuously posted in the pool enclosure and in the dressing rooms and lifeguard rooms (where applicable).

### **R392-302-31. Special Purpose Pools: Spa Pools.**

(1) Spa pools must meet all applicable requirements of all Sections of R392-302 in addition to those of this Section as they apply to special design features and uses of spa pools.

(a) Spa pool projects require consultation with the local health department having jurisdiction.

(2) This subsection supercedes R392-302-6(5). A spa pool shell may be a color other than white or light pastel.

(3) Spa pools shall meet the bather load requirement of R392-302-7(1)(a).

(4) A spa pool may not exceed a maximum water depth of 4 feet, 1.22 meters. The Department may grant exceptions to the maximum depth requirement for a spa pool designed for special purposes, such as instruction, treatment, or therapy.

(5) This subsection supercedes R392-302-12(1)(f). A spa pool may be equipped with a single entry/exit. A spa pool must be equipped with at least one handrail for each 50 feet, 15.24 meters, of perimeter, or portion thereof, to designate the point of entry and exit. Points of entry and exit must be evenly spaced around the perimeter of the spa pool and afford unobstructed entry and egress.

(6) This subsection supercedes R392-302-12(3)(c). In a spa pool where the bottom step serves as a bench or seat, the bottom riser may be a maximum of 14 inches, 35.56 centimeters.

(7) This subsection supercedes R392-302-13(1). A spa pool must have a continuous, unobstructed deck at least 3 feet, 91.44 centimeters, wide around 25 percent or more of the spa.

(8) This subsection supercedes R392-302-13(5). The Department may allow spa decks or steps made of sealed, clear-heart redwood.

(9) A pool deck may be included as part of the spa deck if the pools are separated by a minimum of 5 feet, 1.52 meters. An exception is allowed to the deck and pool separation requirements

if a spa pool and another pool are constructed adjacent to each other and share a common pool sidewall which separates the two pools. The top surface of the common pool side wall may not exceed 18 inches, 45.7 centimeters, in width and shall have markings indicating "No Walking" or an icon that represents the same, provided in block letters at least four inches, 10.16 centimeters, in height, as required by R392-302-39(3)(a), in a contrasting color on the horizontal surface of the common wall. Additionally the deck space around the remainder of the spa shall be a minimum of five feet, 1.52 meters.

(10) This subsection supersedes R392-302-15. The local health officer may exempt a spa pool from depth marking requirements if the spa pool owner can successfully demonstrate to the local health officer that bather safety is not compromised by the elimination of the markings.

(11) A spa pool must have a minimum of one turnover every 30 minutes.

(12) Spa pool air induction systems shall meet the requirements of R392-302-16(12)(a) through (b). Jet or water agitation systems shall meet the requirements of R392-302-16(13).

(13) Spa pool filtration system inlets shall be wall-type inlets and the number of inlets shall be based on a minimum of one for each 20 feet, 6.10 meters, or fraction thereof, of pool perimeter.

(14) Spa pool outlets shall meet all of the requirements of subsections R392-302-18(1) through R392-302-18(4)(e); however, the following exceptions apply:

(a) Multiple spa outlets shall be spaced at least three feet apart from each other as measured from the centers of the drain covers or grates or a third drain shall be provided and the separation distance between individual outlets shall be at the maximum possible spacing.

(b) The Department may exempt an acrylic or fiberglass spa from the requirement to locate outlets at the deepest point in the pool if the outlets are located on side walls within three inches of the pool floor and a wet-vacuum is available on site to remove any water left in the pool after draining.

(15) A spa pool must have a minimum number of surface skimmers based on one skimmer for each 100 square feet, 9.29 square meters of surface area.

(16) A spa pool must be equipped with an oxidation reduction potential controller which monitors chemical demands, including pH and disinfectant demands, and regulates the amount of chemicals fed into the pool circulation system. A spa pool constructed and approved prior to September 16, 1996 is exempt from this requirement if it is able to meet bacteriological quality as required in Subsection R392-302-27 (6)(e).

(17) A spa pool is exempt from the Section R392-302-22, except for Section R392-302-22(3).

(18) The maximum water temperature for a spa pool is 104 degrees Fahrenheit, 40 degrees Celsius.

(19) A spa pool shall meet the total alkalinity requirements of R392-302-27 (3)(d).

(20) A spa pool must have a sign that meets the requirements of a "Rule Sign" in R392-302-39(1), (2) and (3)(c) which contains the following information:

(a) The word "caution" centered at the top of the sign.

(b) Elderly persons and those suffering from heart disease, diabetes or high blood pressure should consult a physician before using the spa pool.

(c) Persons suffering from a communicable disease transmissible via water may not use the spa pool. Persons using prescription medications should consult a physician before using the spa.

(d) Individuals under the influence of alcohol or other impairing chemical substances should not use the spa pool.

(e) Bathers should not use the spa pool alone.

(f) Pregnant women should not use the spa pool without consulting their physicians.

(g) Persons should not spend more than 15 minutes in the spa in any one session.

(h) Children under the age of 14 must be accompanied and supervised by at least one responsible adult over the age of 18 years, when lifeguards are not on duty.

(i) Children under the age of five years are prohibited from bathing in a spa or hot tub.

(j) Running or engaging in unsafe activities or horseplay in or around the spa pool is prohibited.

(21) Water jets and air induction ports on spa pools must be controlled by an automatic timer which limits the duration of their use to 15 minutes per each cycle of operation. The operator shall mount the timer switch in a location which requires the bather to exit the spa before the timer can be reset for another 15 minute cycle or part thereof.

(a) A clearly labeled emergency shutoff or control switch for the purpose of stopping the motor(s) which provide power to the recirculation system, jet system, and water feature systems shall be installed at a point readily accessible to the users and not less than five feet (1.5 meters) away, adjacent to, and within sight of the spa. Non-lifeguarded pools shall have an audible alarm sound when this emergency shutoff is used.

### **R392-302-32. Special Purpose Pools: Wading Pools.**

(1) Wading pools must meet all applicable requirements of

all Sections of R392-302 in addition to those of this Section as they apply to special design features and uses of wading pools.

(a) Wading pool projects require consultation with the local health department having jurisdiction.

(2) Wading pools shall be separated from other pools. Wading pools may not share common circulation, filtration, or chemical treatment systems, or walls.

(3) A wading pool may not exceed a maximum water depth of 2 feet, 60.96 centimeters.

(4) The deck of a wading pool may be included as part of adjacent pool decks.

(5) A wading pool must have a minimum of one turnover per hour and have a separate circulation system.

(6) A wading pool that utilizes wall inlets shall have a minimum of two equally spaced inlets around its perimeter at a minimum of one in each 20 feet, 6.10 meters, or fraction thereof.

(7) A wading pool shall have drainage to waste through a quick opening valve to facilitate emptying the wading pool should accidental bowel discharge or other contamination occur.

#### **R392-302-33. Special Purpose Pools: Hydrotherapy Pools.**

(1) Hydrotherapy pools must meet all applicable requirements of all Sections of R392-302 in addition to those of this Section as they apply to special design features and uses of hydrotherapy pools.

(a) Hydrotherapy pool projects require consultation with the local health department having jurisdiction.

(2) A hydrotherapy pool shall at all times comply with R392-302-27 Disinfection and Quality of Water, R392-302-28 Cleaning of Pools and R392-302-29 Supervision of Pools unless it is drained cleaned, and sanitized after each individual use.

(3) A hydrotherapy pool is exempt from all other requirements of R392-302, only if use of the hydrotherapy pool is restricted to therapeutic uses and is under the continuous and direct supervision of licensed medical or physiotherapy personnel.

(4) Local health departments may enter and examine the use of hydrotherapy pools to respond to complaints, to assure that use of the pool is being properly supervised, to examine records of testing and sampling, and to take samples to assure that water quality and cleanliness are maintained.

(5) A local health officer may grant an exception to section R392-302-31(4)(a) if the operator of the hydrotherapy pool can demonstrate that the exception will not compromise pool sanitation or the health or safety of users.

#### **R392-302-34. Special Purpose Pools: Water Slides.**

(1) Water slides must meet all applicable requirements of

all Sections of R392-302 in addition to those of this Section as they apply to special design features and uses of water slides.

(a) Water slide projects require consultation with the local health department having jurisdiction.

(2) Slide Flumes.

(a) The flumes within enclosed slides must be designed to prevent accumulation of hazardous concentrations of toxic chemical fumes.

(b) All curves, turns, and tunnels within the path of a slide flume must be designed so that body contact with the flume or tunnel does not present an injury hazard. The slide flume must be banked to keep the slider's body safely inside the flume.

(c) The flume must be free of hazards including joints and mechanical attachments separations, splinters, holes, cracks, or abrasive characteristics.

(d) Wall thickness of flumes must be thick enough so that the continuous and combined action of hydrostatic, dynamic, and static loads and normal environmental deterioration will not cause structural failures which could result in injury. The facility operator or owner shall insure that repairs or patchwork maintains original designed levels of safety and structural integrity. The facility operator or owner shall insure that repairs or patchwork is performed in accordance with manufacturer's guidelines.

(e) Multiple-flume slides must have parallel exits or be constructed, so that the projected path of their centerlines do not intersect within a distance of less than 8 feet, 2.44 meters, beyond the point of forward momentum of the heaviest bather permitted by the engineered design.

(f) A slide flume exit must provide safe entry into the splash pool. Design features for safe entry include a water backup, and a deceleration distance adequate to reduce the slider's exit velocity to a safe speed. Other methods may be acceptable if safe exiting from the slide flume is demonstrated to the Department.

(3) Flume Clearance Distances.

(a) A distance of at least 4 feet, 1.22 meters, must be provided between the side of a slide flume exit and a splash pool side wall.

(b) The distance between nearest sides of adjacent slide flume exits must be at least 6 feet, 1.83 meters.

(c) A distance between a slide flume exit and the opposite end of the splash pool, excluding steps, must be at least 20 feet, 6.10 meters.

(d) The distance between the side of the vehicle flume exit and the pool side wall must be at least 6 feet, 1.83 meters.

(e) The distance between nearest sides of adjacent vehicle slide flume exits must be at least 8 feet, 2.44 meters.



(f) The distance between a vehicle slide flume exit and the opposite end of the splash pool, excluding steps, must be long enough to provide clear, unobstructed travel for at least 8 feet, 2.44 meters, beyond the point of forward momentum of the heaviest bather permitted by the engineered design.

(4) Splash Pool Dimensions.

(a) The depth of a water slide splash pool at the end of a horizontally oriented slide flume exit must be at least 3 feet, 9.14 centimeters, but may be required to be deeper if the pool design incorporates special features that may increase risks to bathers as determined by the Department.

(b) The depth must be maintained in front of the flume for a distance of at least 20 feet, 6.10 meters, from which point the splash pool floor may have a constant slope upward. Slopes may not be designed or constructed steeper than a 1 to 10 ratio.

(c) The operating water depth of a vehicle slide splash pool, at the flume exit, must be a minimum of 3 feet 6 inches, 1.07 meters. This depth must be maintained to the point at which forward travel of the vehicle ends. From the point at which forward travel ends, the floor may have a constant upward slope to the pool exit at a ratio not to exceed 1 to 10.

(d) The Department may waive minimum depth and distance requirements for a splash pool and approve a special exit system if the designer can demonstrate to the Department that safe exit from the flume into the splash pool can be assured.

(e) A travel path with a minimum width of 4 feet, 1.22 meters, must be provided between the splash pool deck and the top of the flume.

(5) General Water Slide Requirements.

(a) Stairways serving a slide may not retain standing water. Stairways must have non-slip surfaces and shall conform to the requirements of applicable building codes.

(b) Vehicles, including toboggans, sleds, inflatable tubes, and mats must be designed and manufactured of materials which will safeguard the safety of riders.

(c) Water slides shall meet the bather load requirements of R392-302-7(1)(d).

(6) Water Slide Circulation Systems.

(a) Splash pool overflow reservoirs must have sufficient volume to contain at least two minutes of flow from the splash pool overflow. Splash pool overflow reservoirs must have enough water to insure that the splash pool will maintain a constant water depth.

(b) The circulation and filtration equipment of a special purpose pool must be sized to turn over the entire system's water at least once every hour.

(c) Splash pool overflow reservoirs must circulate water

through the water treatment system and return when flume supply service pumps are turned off.

(d) Flume pumps and motors must be sized, as specified by the flume manufacturer, and must meet all NSF/ANSI 50-2015, which is incorporated by reference, Section 6. Centrifugal Pumps, standards for pool pumps.

(e) Flume supply service pumps must have check valves on all suction lines.

(f) The splash pool and the splash pool overflow reservoir must be designed to prohibit bather entrapment as water flows from the splash pool to the overflow reservoir.

(g) Perimeter overflow gutter systems must meet the requirements of Section R392-302-19, except that gutters are not required directly under slide flumes or along the weirs which separate splash pools and splash pool overflow reservoirs.

(h) Pump reservoir areas must be accessible for cleaning and maintenance.

(7) Slide Signs.

(a) Signs that meet the requirements in R392-302-39(1), (2) and (3)(c) and reflecting the slide manufacturer's recommendations must be mounted adjacent to the entrance to a water slide and at other appropriate areas in accordance with R392-302-39(1). The heading of the signs shall be, "SLIDE INSTRUCTIONS, WARNINGS, AND REQUIREMENTS". The body of the signs shall state at least the following:

(i) Instructions including:

- (A) proper riding position,
- (B) expected rider conduct,
- (C) dispatch procedures,
- (D) exiting procedures, and
- (E) obeying slide attendants or lifeguards.

(ii) Warnings to include:

- (A) slide characteristics such as speed, and
- (B) depth of water in splash zone.

(iii) Requirements which include that riders being free of medical conditions identified by the manufacturer such as pregnancy, heart conditions, back conditions, or musculoskeletal conditions.

### **R392-302-35. Special Purpose Pools: Interactive Water Features.**

(1) Interactive water features must meet all applicable requirements of all Sections of R392-302 in addition to those of this Section as they apply to special design features and uses of interactive water features.

(a) Interactive water feature projects require consultation with the local health department having jurisdiction.

(2) All parts of the interactive water feature shall be

designed, constructed, maintained, and operated so there are no slip, fall, or other safety hazards, and shall meet the standards of the State Construction Code Title 15a, State Construction and Fire Codes Act.

(3) Interactive water feature nozzles that spray from the ground level shall be flush with the ground, with openings no greater than one-half inch in diameter. Spray devices that extend above ground level shall be clearly visible.

(4) Areas adjacent to the water feature collection zones shall be sloped away at a minimum of two percent from the interactive water feature to deck drains or other approved surface water disposal systems. A continuous deck at least 3 feet, 0.91 meters, wide as measured from the edge of the collection zones must extend completely around the interactive water feature.

(5) Water discharged from all interactive water feature fountain or spray features shall freely drain by gravity flow through a main drain fitting to a below grade sump or collection system which discharges to a collector tank.

(6) All interactive water feature foggers and misters that produce finely atomized mists shall be supplied directly from a potable water source and not from the underground reservoir.

(7) The interactive water feature shall have an automated oxidation reduction potential (ORP) and pH controller installed and in operation whenever the feature is open for use. The controller shall be capable of maintaining disinfection and pH levels within the requirements for special purpose pools listed in Table 6. In addition, an approved secondary disinfection system that meets the requirements of in R392-302-38(4)(c) through (4)(f)(iii) shall be installed and in operation whenever the feature is open for use.

(8) A sign that meets the requirement R392-302-39(1), (2) and (3)(c) stating:

(a) The word "CAUTION" centered at the top of the sign.  
(b) No running on or around the interactive water feature.  
(c) Children under the age of 12 must have adult supervision.

(d) No food, drink, glass or pets are allowed on or around the interactive water feature.

(e) For the health of all users restrooms shall be used for the changing of diapers.

(9) If the interactive water feature is operated at night, five foot-candles of light shall be provided in the all areas of the water feature. Lighting shall be installed in accordance with manufacturer's specifications and approved for such use by UL or NSF.

(10) Hydraulics.

(a) The interactive water feature filter system shall be

capable of filtering and treating the entire water volume of the water feature within 30 minutes.

(b) The interactive water feature filter system shall draft from the collector tank and return filtered and treated water to the tank via a minimum of 4 equally spaced inlet fittings. Inlet spacing shall also meet the requirements of section R392-302-17.

(c) The interactive water feature circulation system shall be on a separate loop and not directly interconnected with the interactive water feature pump.

(d) The suction intake of the interactive water feature pump in the underground reservoir shall be located adjacent to the circulation return line and shall be located to maximize uniform circulation of the tank.

(e) An automated water level controller shall be provided for the interactive water feature, and the drinking water line that supplies the feature shall meet the requirements of R392-302-4.

(f) The water velocity through the feature nozzles of the interactive water features shall meet manufacturer's specifications and shall not exceed 20 feet per second.

(g) The minimum size of the interactive water feature sump or collector tank shall be equal to the volume of 3 minutes of the combined flow of all feature pumps and the filter pump. Access lids or doors shall be provided to the sump and collector tank. The lids or doors shall be sized to allow easy maintenance and shall provide security from unauthorized access. Stairs or a ladder shall be provided as needed to ensure safe entry into the tank for cleaning and inspection.

(h) The suction intake from the interactive water feature circulation pump shall be located in the lowest portion of the underground reservoir.

(i) A means of vacuuming and completely draining the interactive water feature tank shall be provided.

(11) An interactive water feature is exempt from:

(a) The wall requirement of section R392-302-10;

(b) The ladder, recessed step, stair, and handrail requirements of section R392-302-12;

(c) The fencing and access barrier requirements of section R392-302-14;

(d) The outlet requirements of section R392-302-18 except any submerged outlet that may create an entrapment hazard to users of the feature shall meet the requirements of R392-302-18(1)(a);

(e) The overflow gutter and skimming device requirements of section R392-302-19;

(f) The safety and lifesaving requirements of section R392-302-22, except that an interactive water feature shall be equipped with a first aid kit as required by subsection R392-302-22(3);

(g) The restroom and shower facility requirements of section R392-302-25 as long as toilets, lavatories and changing tables are available within 150 feet;

(h) The pool water clarity and temperature requirements of subsection R392-302-27(5);

(i) The diving area requirement of R392-302-11 except R392-302-11(4)(a) and (b) may be required by the Local Health Officer if the Local Health Officer determines that a diving risk exists;

(j) The depth marking and safety rope requirements of R392-302-15;

(k) The underwater lighting requirements of R392-302-23(1), (2), and (3);

(l) The supervision of bathers requirements of R392-302-30;

(m) The bather load requirements of R392-302-7; and

(n) The pool color requirements of R392-302-6(5).

(12) All interactive water features shall be constructed with a collection zone that meets the requirements of R392-302-6. Vinyl liners that are not bonded to a collection zone surface are prohibited. A vinyl liner that is bonded to a collection zone shall have at least a 60 millimeter thickness. Sand, clay, or earth collection zones are prohibited.

(a) The collection zone material of an interactive water feature must withstand the stresses associated with the normal uses of the interactive water feature and regular maintenance. The collection zone structure and associated tanks shall withstand, without any damage to the structure, the stresses of complete emptying of the interactive water feature and associated tanks without shoring or additional support.

(b) The collection zone of an interactive water feature must be designed and constructed in a manner that provides a smooth, easily cleanable, non-abrasive, and slip resistant surface. The collection zone surfaces must be free of cracks or open joints with the exception of structural expansion joints or openings that allow water to drain to the collector tank. Openings that drain to the collector tank shall not pass a one-half inch sphere. The owner of a non-cementitious interactive water feature shall submit documentation with the plans required in R392-302-8 that the surface material has been tested and passed by an American National Standards Institute (ANSI) accredited testing facility using one of the following standards that is appropriate to the material used:

(i) for pools built with prefabricated pool sections or pool members, the ISO 19712-1:2008 - Plastics - Decorative solid surfacing materials - Part 1: Classification and specifications, which is incorporated by reference; or

(ii) a standard that has been approved by the Department based on whether the standard is applicable to the surface and

whether it determines compliance with the requirements of Section R392-302-6.

**R392-302-36. Special Purpose Pools: Instructional Pools.**

(1) The Department shall undertake to investigate the public health related experiences and science of instructional pools operating with the exemptions in this section. That investigation shall be completed on June 30th, 2021, after which time this section will expire and may be replaced with minimum requirements based on the findings of the investigation. The Department will make those findings public 90 days prior to the expiration date.

(a) This investigation shall include periodic testing of the pool's water balance, disinfection level, total coliform, and heterotrophic plate count.

(2) An instructional pool is exempt from all requirements of R392-302.

(a) Pools operating under this exemption shall post a prominent sign stating that the pool does not conform to a standard design and is under evaluation to determine applicable standards to be implemented in the future. The lettering in this sign shall be no less than one centimeter in height.

(b) Pools operating under this exemption shall require parents of participating children to sign an acknowledgment that they have read and understand the notice required in R392-302-36(2)(a).

**R392-302-37. Advisory Committee.**

(1) An advisory committee to the Department regarding regulation of public pools is hereby authorized.

(2) The advisory committee shall be appointed by the Executive Director. Representatives from local health departments, pool engineering, construction or maintenance companies and pool owners may be represented on the committee.

(3) Consistent with R380-1, the Executive Director may seek the advice of the advisory committee regarding interpretation of this rule, the granting of exemptions and related matters.

**R392-302-38. Cryptosporidiosis Watches and Warnings.**

(1) The Executive Director or local health officer may issue cryptosporidiosis watches or cryptosporidiosis warnings as methods of intervention for likely or indicated outbreaks of cryptosporidiosis. The Executive Director or local health officer may issue a cryptosporidiosis watch if there is a heightened likelihood of a cryptosporidiosis outbreak. The Executive Director or local health officer may issue a cryptosporidiosis warning if there have been reports of cryptosporidiosis above the background level reported for the disease. The Executive Director

or local health officer shall include the geographic area and pool type covered in the warning and may restrict certain persons from using public pools.

(2) If a cryptosporidiosis watch or a cryptosporidiosis warning has been issued, the operator of any public pool shall post a notice sign meeting at a minimum the ANSI Z535.2-2011, which is incorporated by reference, requirements for NOTICE signs with a 10-foot viewing distance and approved by the local health officer. An Adobe Acrobat .pdf version of the sign that meets the requirements of this section shall be made available from the Department or the local health department. The notice sign shall be placed so that all patrons are alerted to the cryptosporidium-targeted requirements prior to deciding whether to use the swimming pool. The sign shall be at least 17 inches, 43 centimeters, wide by 11 inches, 28 centimeters, high.

(a) Centered immediately below the blue panel shall appear the words "CRYPTO DISEASE PREVENTION" in capital letters.

(b) The body of the notice sign shall be in upper case letters at least 0.39 inches, 1.0 centimeters, high and include the following four bulleted statements in black letters:

- All with diarrhea in the past 2 weeks shall not use the pool.

- All users must shower with soap to remove all fecal material prior to pool entry and after using the toilet or a diaper change.

- All less than 3 yrs or who wear diapers must wear a swim diaper and waterproof swimwear. Diapers may only be changed in restrooms or changing stations.

- Keep pool water out of your mouth.

(3) If a cryptosporidium warning has been issued, each operator of a public pool subject to the warning shall, at a minimum, implement the following cryptosporidium counter measures:

(a) maintain the disinfectant concentration within the range between two mg/l (four mg/l for bromine) and the concentration listed on the product's Environmental Protection Agency mandated label as the maximum reentry concentration, but in no case more than five mg/l (10 mg/l for bromine);

(b) maintain the pH between 7.2 and 7.5; and

(c) maintain the cyanuric acid level that meets the requirement of R392-302-27(3), except the maximum level shall be reduced to 30 mg/l.

(4)(a) If a cryptosporidium warning has been issued, in addition to the requirements listed in R392-302-38(3), the owner or operator of a public pool shall implement any additional cryptosporidium countermeasures listed in subsection below sufficient to achieve at least a 99.9 percent destruction or removal of cryptosporidium oocysts twice weekly, except as provided in R392-302-38(4)(b).

(b) Hyperchlorination using sodium hypochlorite or calcium hypochlorite to achieve a concentration multiplied by time (CT) value of 15,300 mg/l minutes. Table 7 lists examples of chlorine concentrations and time periods that may be used to achieve the required CT value. The operator shall not allow anyone to use the pool if the chlorine concentration exceeds the Environmental Protection Agency maximum reentry concentration listed on the product's label, but in no case if the concentration exceeds five mg/l. The operator of any public pool not required to have a lifeguard by R392-302-30(2) shall hyperchlorinate at least once weekly.

(c) A full flow ultraviolet treatment system that meets the requirements of standard NSF/ANSI 50-2015, which is incorporated by reference, for ultraviolet light process equipment. The owner or operator shall ensure that the system is installed and operated according to the manufacturer's recommendations. The owner or operator shall obtain from the manufacturer of the system documentation of third-party challenge testing that the system can achieve a single pass 99.9 percent inactivation of cryptosporidium or the bacteriophage MS2 at the pool design flow rate and during normal operating conditions. The owner or operator shall maintain and make available for inspection the manufacturer's documentation.

(d) An ozone treatment system that achieves a CT value of 7.4 and a flow-through rate at least four times the volume of the pool every three and a half days. The system shall meet the requirements of standard NSF/ANSI 50-2015, which is incorporated by reference, for ozone process equipment. The owner or operator shall ensure that the system is installed and operated according to the manufacturer's recommendations.

(e) A cryptosporidium oocyst-targeted filter system installed and operated according to the manufacturer's recommendations. The filter shall meet the requirements of R392-302-20. The owner or operator shall obtain from the manufacturer of the system documentation of third-party challenge testing that the system can achieve a single pass 99 percent reduction of particles in the range of 4 to 6 microns or cryptosporidium oocysts at the pool design flow rate and normal operating conditions. The owner or operator shall maintain and make available for inspection the manufacturer's documentation.

(f) A system approved by the local health officer. The health officer's approval of a system for use as an alternative shall be based on the system's documented ability to:

(i) achieve cryptosporidium removal or inactivation to a level at least equivalent to the requirements in R392-302-38(4) (a);

(ii) assure safety for swimmers and pool operators; and



(iii) comply with all other applicable rules and federal regulations.

TABLE 7

Chlorine Concentration and Contact Time to Achieve CT = 15,300

Chlorine Concentration	Contact Time
1.0 mg/l	15,300 minutes (255 hours)
10 mg/l	1,530 minutes (25.5 hours)
20 mg/l	765 minutes (12.75 hours)

(5) If the Executive Director or local health officer issues a restriction on the use of public pools by certain persons as part of the cryptosporidium warning the operator shall restrict persons within that segment of the population from using the facility.

(6) If the Executive Director or local health officer determines that a pool is a cryptosporidiosis threat to public health, he may order the pool to close. The owner or operator of the pool may not reopen until the person issuing the order has rescinded it.

### **R392-302-39. Signs.**

(1) Signs required in R392-302 shall be placed to alert and inform patrons in enough time that the patrons may take appropriate actions.

(2) Signs shall be written in a lettering style, stroke width, spacing, and contrast with the background such that the sign is clearly visible.

(3) As required in different subsections of this rule, sign lettering shall meet one or more, if stated, of the following minimum size standards:

(a) "4 Inch Safety Sign" shall be written in all capital letters that are at least four inches, 10.2 centimeters in height.

(b) "2 Inch Safety Sign" shall be written in all capital letters that are at least two inches, 5.1 centimeters, in height.

(c) "Rule Signs" shall be written with any required signal word, warning or caution, as the sign heading in letters at least two inches, 5.1 centimeters, in height and the body or bulleted rules in letters at least 0.5 inches, 1.27 centimeters, in height.

(i) If the sign can only be viewed from more than a distance of ten feet, 3.048 meters, the letter height shall be larger in the same proportion as the required viewing distance is to ten feet, 3.048 meters.

(ii) The Local Health Officer may approve smaller letter

sizes than those required in R392-302-39(3)(c) if the sign will always be viewed from less than a ten foot, 3.048 meters, distance and if the Local Health Officer agrees that the sign meets the requirements of R392-302-39(1) and (2).

**KEY: pools, spas, swimming, water**

**Date of Enactment or Last Substantive Amendment: May 24, 2018**

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